GBR Systems Corporation 12 Inspiration Lane Chester, CT 06412-1366
Toll Free: 800-833-6167; Phone: 860-526-9561;
Fax: 860-526-2747; E-mail: sales@gbr.com

420T Smart/Feeder Service Manual

Table of Contents

SECTION A INTRODUCTION 10

A.1 INTRODUCTION TO THE MANUAL 10

A.2 INTRODUCTION TO THE MACHINE. 10

A.2a FEEDER SECTION 10

Creeper Conveyor 10

Hopper and Feeder Paper Guide Rails: 11

Paper Supply 11

Feed Belt 13

Auxiliary Feed Belts 13

Drive Rollers 13

Paper Level Detector 13

Singulator 13

A.2b SENSORS 13

Feed Sensor 13

Double Detect Sensor (Prior to October-2005) 13

Start Read Sensor 13

Feeder Speed Encoder 14

A.2c ACCUMULATOR SECTION 14

Stacking Ramps 14

Stacking or Dump Rollers. 14

Dump Brake 14

Dump Clutch 14

Accumulator Sensor. 14

Stack Sensor 14

Feed Clutch 15

Feed Brake 15

Read Gate (Line Code Gate) Sensor 15

Feed Sensor 15

Double Detect Sensor 16

A.2d FOLDER 16

Buckle Plates 16

Folder Rollers 17

Folder Drive Motor & Controller Board 17

Adjusting The Folder Speed: 17

Folder Speed Encoders 18

A.2e Components of the Controller Box 19

Inside The DC Distribution Chassis: 21

Transfer Conveyor Sensors. 22

A.2f EMERGENCY STOP INTERLOCKS 23

A.3 Machine Specifications 26

A.4 RUN SCREEN 27

Information Displayed: 27

A.5 KEYBOARD OPERATION 28

RUN / STOP 28

CYCLE 28

PURGE 28

START 28

E – STOP 28

A.6 SETUP SCREENS 29

TABLE OF CONTENTS

A.6a System Setup 29
A.6b Feeder Setup 31
A.6c Accumulator Setup 32
A.6d Folder Setup (Future Option). 32
A.6e Xfer Cvyr (Transfer Conveyor) Setup 33
A.6f Infeed Setup 34
A.6g Line Read Setup 0. 35
A.6h Bar Read Setup 36
A.6i Inserter Setup 0 36
A.6j Inserter Setup 1 38
Example of “Inserter Station Swapping” set-up on the GBR. 40
A.6k Inserter Setup 2 41
A.6l Inserter Setup 3 42
A.6m Inserter Setup 4. 43
A.6n Engineering Values (Password Protected) 44
A.6o Exit Comm Setup 45

A.7 GBR LINE CODE READ SYSTEMS OPTION 46

A.7a Introduction 46
A.7b 420T Line Read Setup Screens (GBR & BB+H) 47
Line Read Setup 1 47
Line Read Setup 2 49
Line Read Setup 3 50
Line Read Setup 4 (TJ Read Sys - Obsolete) 51

A.8 LASER BAR CODE READ OPTION 52

A.8a Laser Safety 52
A.8b Bar Code Basics 53
A.8c Adjusting Your Model F30 Scanner 53

A.9 Setting the 420T to Read Laser Bar Code 54

A.9a Adjusting the Paper Guides 54
Bar Read Setup 1 55
Bar Read Setup 2 57
Bar Read Setup 3 58
Bar Read Setup 4 59

ADDENDUM I 60

Overview 60
Installation 60
Operation. 60
Setups 60
Lineread, Barread Setup: 60
Inserter Setup: 60
Inserter Setup 2: 60
Inserter Setup 3: 61
Postal Meter 2: 61
Postal Meter 3: 61
Postal Meter Weights : 61
Weight Page and Envelope:. 61
Weight Inserts 1 2 3 4 61
Weight Inserts 5 6 7 8 61
Weight Calculation 62
Three Meter Example 62
Three Meter Setup 62
Two Meter Example 64
Three Meter Setup: 64

TABLE OF CONTENTS

Addendum II. 65

Signal Specification 65

1) RR Donnely 1 Protocol: 65

2) RR Donnely 2 Protocol: 66

3) Pinnacle 1 Protocol: 67

4) Pinnacle 2 Protocol: 67

5) General Protocol: 68

6) Tampa 1 Protocol: 68

7) Zaandam I Protocol: 69

8) Friedberg 1 Protocol: 70

9) General 2 Protocol: 70

General Notes 71

SECTION B PREVENTATIVE MAINTENANCE 73

B.1 Test equipment and tools 73

B.2 General procedures 73

B.2a Cleaning the machine. 73

B.2a1 Cleaning the Fold Rollers 73

B.2a2 Cleaning the Fold Rollers 73

B.2a3 Machine Cabinets and Covers 73

B.2a4 Paper Hopper. 73

B.2a5 Singulator 73

B.2b Lubrication 73

C.1 “TEST” SCREEN OPERATION 75

C.1a Speed Test 75

C.1b Test Cycle 75

C.2 IO/144 BOARD (INPUTS AND OUTPUTS) 75

C.2a Orientation. 75

C.2b I/O Reference Tables 420T V6LT I/O Table 0 76

C.2c I/O Reference Tables 420 V6LT I/O Table 1 77

C.2d I/O Reference Tables 420 V6LT I/O Table 2 77

C.3 GENERAL SOLUTIONS TO ERRORS 78

C.3a Solutions to Less Common Errors. 78

C.3b ERROR CODES 79

Module Error Codes: 79

System Module: 110nn/8nn 79

Feeder Module: 120nn/8nn 80

Accumulator Module: 130nnn 80

Folder Module: 140nn/8nn 80

Xcvyr Module: 150nn/8nn 80

Bar Read Module: 160nn/8nn 81

Line Read Module: 180nn/8nn 81

Xcomm Module: 200nn/8nn 81

Infeed Module: 210nn/8nn. 81

Ethernet Module: 220/8nn 82

NVFile (StringFile) Module: 230/8nn 82

C.3c (11xxx) System 83

11020 “Exit Demand Timeout”. 83

11021 "Cover Interlock Open or Emergency Stop Set 83

11022 "Cover Interlock Open or Emergency Stop Set” 83

11024 "Exit Sensor Error” 83

11025 "NOT READY" 83

11028 “Jam Out of Folder” 83

11029 “Max. No Stop Error Diverts” 83

TABLE OF CONTENTS

C.3d (12xxx) Feeder 83
12001 “No Feed Error” 83
12020 “DOUBLE PAGE FED” 84
12021 “Below Minimum Speed” 84
12022 “LONG PAGE FED” 84
12023 “EXTRA PAGE WAS FED” 85
12025 “FEED TO ACCUMULATOR JAM (TIME)” 85
12026 “SPEED LOW” 85
C.3e (13xxx) Accumulator 86
13000 “Stack Error” 86
13001 “Misfeed Error” 86
13003 “Max Accu. Pages Exceeded - Remove Pack” 86
13004 “Package Size Exceeded” 86
13021 “Un-Expected Pack Present - Remove Pack” 87
13022 “Accumulator Presence Not Detected” 87
13024 “First Page Hold Slip” 87
13025 “First Page Hold UnFinished” 87
13027 “First Page Hold UnFinished” 87
13030 “Max Track Pages Exceeded - Remove Pack” 87
C.3f (14xxx) Folder 88
14001 “Jam In Folder - Pack Not Seen At Folder Exit” 88
14002 “Jam At Folder Exit” 88
14020 “SPEED LOW” 88
14021 "Folder Exit Sensor Jam" 89
14022 "Below Minimum Speed" 89
C.3g (15xxx) Xfer Conveyor (Xfer Cvyr, Xcvy) 89
15001 “Jam Error” 89
15002 “Jam At In Sensor Error” 89
15003 “Jam At Out Sensor Error” 90
15004 “Jam Into Transfer Conveyor” 90
15005 “Un-expected Pack Exited Xfer Conveyor” 90
15006 "Expected Pack Did Not Exit Xfer Cvyr” 90
15020 “Jam Into Xfer Cnvy Station 1" 91
15020 “Jam Into Xfer Station 1" 91
15021 “Jam Out Of Xfer Cnvy Station 1" 91
15021 “Jam Out Of Xfer Station 1" 91
15022 “Jam into Xfer Station 2” 92
15022 “Jam Into Xfer Station 2" 92
15023 “Jam out of Xfer Station 2” 92
15023 “Jam Out Of Xfer Station 2" 92
15024 “Jam into Xfer Station 3” 92
15025 "Jam out of Xfer Station 3” 93
15026 “Unknown Pack Sta 1 – Set Pack Bad” 93
15027 “Unknown Pack Sta 2 – Set Pack Bad” 93
15028 “Unknown Pack Sta 3 – Set Pack Bad” 94
15029 “Unknown Packs – Remove Packs” 94
15030 “Jam Out of Folder, Into Collector Ramps” 94
15031 “Jam On Collector Input Ramps” 94
15032 “Jam Out Of Collector” 95
15036 “Missing Pack Sta 1 – Set Sta Empty” 95
15037 “Missing Pack Sta 2 – Set Sta Empty” 95
15038 “Missing Pack Sta 3 – Set Sta Empty” 96
15039 “Unknown Packs – Remove Packs” 96
15040 “False Feed Into Xfer Station 1” 96

TABLE OF CONTENTS

15041 “False Feed Out Of Xfer Station 1” . . . 96
15042 "False Feed Into Xfer Station 2” . . . 97
15042 “False Feed Into Xfer Station 2" . . . 97
15043 “False Feed Out Of Xfer Station 2” . . . 97
15043 “False Feed Out Of Xfer Station 2" . . . 97
15044 “False Feed Into Xfer Station 3” . . . 98
15045 “False Feed Out Of Xfer Station 3” . . . 98
15046 “No Data From Sta 2 - Set Sta 4 Pack Bad” . . . 98
15050 “No Data From Sta 1 - Set Sta 2 Pack Bad” . . . 99
15051 “Data Overwrite Sta 2 - Set Sta 2 Pack Bad” . . . 99
15052 “No Data From Sta 2 - Set Sta 3 Pack Bad” . . . 99
15053 “Data Overwrite Sta 3 - Set Sta 3 Pack Bad” . . . 100
15054 “No Data From Sta 3 - Set Sta 4 Pack Bad” . . . 100
15055 " Data Overwrite Sta 4 - Set Sta 4 Pack Bad” . . . 101
15056 “No Data From Sta 1 - Set Sta 4 Pack Bad” . . . 101
15057 “Data Overwrite Sta 4 - Set Sta 4 Pack Bad” . . . 101
15057 “Data Overwrite Sta 4 - Set Sta 4 Pack Bad” . . . 101
15058 “Data Overwrite Sta 2 - Set Sta 2 Pack Bad” . . . 102
15059 “Data Overwrite Sta 1 - Set Sta 1 Pack Bad” . . . 102
C.3g (16xxx or 18xxx) Reader . . . 103
16052 “READLESS READ ERROR ” . . . 103
Bar Code Reading Errors . . . 103
nnn01 “GROUP NUMBER OUT OF SEQUENCE” . . . 103
nnn02 “EXPECTED END OF GROUP” . . . 103
nnn03 “BLANK PAGE” . . . 103
nnn04 “SHORT GROUP” . . . 103
nnn05 “DUPLICATE PAGE” . . . 103
nnn06 “PAGE OUT OF SEQUENCE” . . . 103
nnn07 “INVALID GROUP” . . . 104
nnn08 “EXPECTED PAGE ONE” . . . 104
nnn09 “GROUP NUMBER OUT OF RANGE” . . . 104
nnn10 “PAGE OUT OF RANGE” . . . 104
nnn11 (NOT USED) “INVALID!” . . . 104
nnn12 “NOT ENOUGH NV-RAM” . . . 104
nnn13 “PRESETS CORRUPT” . . . 104
nnn14 “NV RAM FAILED” . . . 104
nnn15 “DUAL PORT RAM FAILED” . . . 104
nnn16 “INVALID COMMAND” . . . 104
nnn17 “INVALID PIC INT” (Invalid "Programmable Interrupt Controller" interrupt) . . . 105
nnn18 “INVALID SETUP DATA” . . . 105
nnn19 “PARITY ERROR” . . . 105
nnn20 “LINE OUT OF WINDOW TOLERANCE” . . . 105
nnn21 “BAD ON-CHIP 8501 RAM” . . . 105
nnn22 “INVALID READER ERROR” . . . 105
nnn23 “INVALID CAL SETUP” (Invalid calibration setup) . . . 105
nnn24 “NO BANK 2 GATE MARK” . . . 105
nnn25 “CALIBRATION OUT OF RANGE” . . . 105
nnn26 “YES/NO EOG ARE SAME” . . . 105
nnn27 “ROLL PAGE OUT OF SEQUENCE” . . . 105

nnn28 “UN-EXPECTED RESPONSE” . . . 105
nnn29 “EXPECTED READING” . . . 106
nnn30 “READER REBOOTED” . . . 106
nnn31 “CALIBRATION IN RANGE” . . . 106
nnn32 “NO RANDOM CHECK MK” (No random check MarK) . 106
nnn33 “UN-EXPECTED RANDOM CHECK” . . . 106
nnn34 “PACK LARGER THAN SET” . . . 106
nnn35 “PACK LESS THAN SET” . . . 106
nnn36 “GROUP NUMBER CHANGED IN SET” . . . 106
nnn37 “LAST SET SAME GROUP NUMBER” . . . 106
nnn38 “MAX SHEETS IN ACCUM” (Maximum sheets in ACCUMulator) . . . 106
nnn39 “UN-EXPECTED EOG” (End Of Group) . . . 106
nnn40 “NO RESPONSE TIMEOUT” . . . 106
nnn41 “BAD READ” (Bar Reading) . . . 106
nnn42 “MAX PAGE NOT = NO. PAGES” (Bar Reading) . . . 107
nnn43 “INVALID GROUP NUMBER” (Bar Reading) . . . 107
nnn44 “BAD CHECK DIGIT” (Bar Reading) . . . 107
nnn45 “EXPECTED END OF SET” (Bar Reading) . . . 107
nnn46 “EXPECTED PAGE ZERO” (Bar Reading) . . . 107
nnn47 "PAGES GREATER THAN ACCUMULATOR MAX" . . . 107
nnn48 "BLANK PAGE OR MISSING MARKS" . . . 107
nnn49 "ITEM VERIFY COUNT INVALID" . . . 107
nnn50 "READER SETUP ERROR" . . . 107
nnn51 "SETUP TIMEOUT ERROR" . . . 107
nnn52 "READLESS READ ERROR" . . . 107
nnn53 "CUSTOMER ID CHANGED IN SET" . . . 107
nnn54 "CUSTOMER ID DID NOT CHANGE AFTER LAST SET". 107
nnn55 "TOTAL PAGE CHANGED IN SET" . . . 107
nnn56 "SETUP TIMEOUT ERROR" . . . 108
nnn57 "NO READ DATA" . . . 108
nnn99 "UNDEFINED ERROR" . . . 108
C.3h (17xxx) Inserter Error Messages . . . 108
C.3i (19xxx) EngValue Error Messages . . . 108
C.3j (20xxx) EXITCOMM Error Messages . . . 108
20001 “NO MESSAGE RESPONSE” . . . 108
C.3k (21xxx) InFeed Error Messages . . . 108
21001 “PAPER DEMAND TIMEOUT” . . . 108
C.4 E-STOP PROBLEMS AND ANALYSIS . . . 108
C.4a Troubleshooting the E-stop / Interlock System . . . 108
Problem: . . . 108
Some questions: . . . 108
Analysis: . . . 108
Troubleshooting V6-V6LT E-Stop/Gate Panel: . . . 108
GBR 420 Inserter Screen List Diagnostic Description . . . 111
Overview: . . . 111
Inserter Setup Screen List Description of Pack Data: . . . 111
Inserter SetUp list Example: . . . 112

TABLE OF CONTENTS

420T/438 - Barcode Data Specification 3 - 2D - Rev.3 113
Overview 113
Bar Code Description 113
Bit Numbering per Character Conventions: 113
Character String: 113
GBR420 Setups for General Barcode Spec 3 -2D 114
BarCode Character to Value to 5-Bit Value: 117
To define the Extraction of Demand Feed: 119
To define the Extraction of Inkmark: (method 1) 119
To define the Extraction of Inkmark: (method 2) 119
To define the Extraction of Insert Sta. 1 to 6: 119
Bit Number 120
Bit Number 120
Barcode Setups 120
Character Decimal Hex Binary (Bit Position 6-5-4-3-2-1) 121
GBR438/420T – Read End Of Set Operational Summary v2 . 122
Overview 122
Common Demand Feed: 122
Lineread Demand Feed: 122
Barread Demand Feed: 123
D.1 CPU PC104 (SAT520) CARD 125
D.1a Features 125
D.1b General Description 125
D.2 I/O 96 Daughter CARD 126
D.2a General Description 126
D.3 Single Channel Read Card 126
D.3a Function: 126
D.3b LED Indications: 127
D.6 Line Code Read Card 128
D.6a Two Channel Switching Card 128
SECTION E. INTERFACE TO INSERTING EQUIPMENT . 129
E.1 ENCODER INSTALLATION 129
Below Used On: 775 Configuration W/O Host RPS Encoder . . . 129
Inserter Home Position Setup 129
This screen shows: 129
E.2 Removal of insterter's Hopper Side Plates 130
E.2a REMOVE HOPPER GUIDE 130
E.2b remove singulator finger 130
E.2c 420T INTERFACE COUPLING 131
E.3 Transfer Conveyor Adjustments 133
E.3a Package overhang at last station 133
E.3b Position of the outfeed guides 133
E.3c Fold quality 133
E.3d If a package spacing problem occurs 133
E.3e Configuration of Exit sensor module 133
E.3f Testing of the exit sensor 133
E.4 Setup of Demand switch 134
F.1 Software Rev Update using E-Mail 135
F.2 GBR OMR Reader Set-up 135

F.3 Read Zone Diagrams: 136
F.4 Engineering Values 137
F.5 Typical Postal Metering Setup Presets 141
Test - “Setup”. 141
Insert Sta.-:2: 141
Insert Sta.-:1: 141
Ink Marking:. 141
Insert Sta.:00: 141
Postal Meter Divert: 141
Postal Meter 2: 141
Postal Meter 3: 141
Postal Meter Weights: 141
Weight Page and Envelope: 141
Weight Inserts 1 2 3 4: 141
Weight Inserts 5 6 7 8: 141

While every care has been taken in the preparation of this manual, no liability will be accepted by GBR Systems Corporation arising out of any inaccuracies or omissions.

All service documentation is supplied to GBR Systems Corporation external customers for informational purposes only. GBR Systems Corporation service documentation is intended for use by certified, product trained service personnel only. GBR Systems Corporation does not warrant or represent that such documentation is complete. GBR Systems Corporation does not represent or warrant that it will notify or provide to such customer any future changes to this documentation. Customer's service of equipment, or modules, components, or parts of such equipment may void any otherwise applicable GBR Systems Corporation warranties. If Customer services such equipment, modules, components, or parts thereof, Customer releases GBR Systems Corporation from any and all liability for Customer's actions, and Customer agrees to indemnify, defend, and hold GBR Systems Corporation harmless from any third party claims which arise directly or indirectly from such service.

Prepared by:

GBR Systems Corporation

Technical Publications

860-526-9561

www.gbr.com

Copyright 2008 by GBR Systems Corporation. All rights reserved, GBR Systems Corporation.

Copyright protection claimed includes all forms or manner of copyrighted materials and information now allowed by statutory or judicial law or hereinafter granted, including without limitation, material generated from the software programs which are displayed on the screen such as styles, templates, icons, screen displays, looks, etc.

Printed in the United States of America.

USING THE MANUAL

TABLE OF CONTENTS

Each capitalized alphabetic character represents a major division within the manual (Section A).

Under each major division, the capital letter is followed by a number. This represents a subdivision of the major section (Section A1. is a subdivision of A.).

Under each subdivision, an alphanumeric combination is followed by a decimal and a lower case letter. This represents a smaller division under a subdivision (Section A.1a. is a subdivision of A.1, Section A.1a1 is a subsection of A.1a).

This manual is divided into Sections A through F.

SECTION A INTRODUCTION

A.1 INTRODUCTION TO THE MANUAL

This manual is intended for service technicians and is organized to enhance preventive maintenance, troubleshooting, and repair of the 420T. Installation of the 420T is also described.

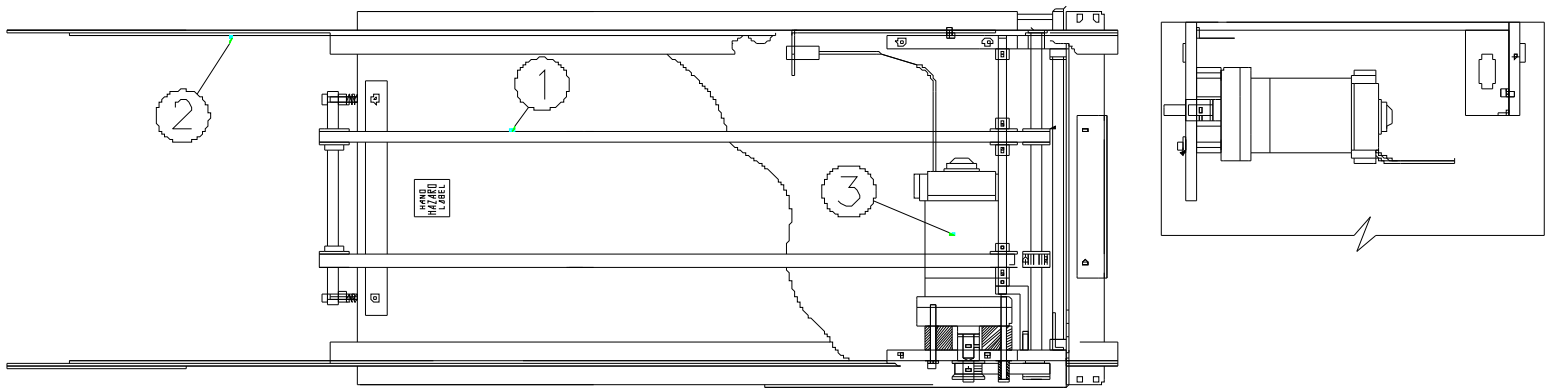
A.2 INTRODUCTION TO THE MACHINE

A.2a FEEDER SECTION

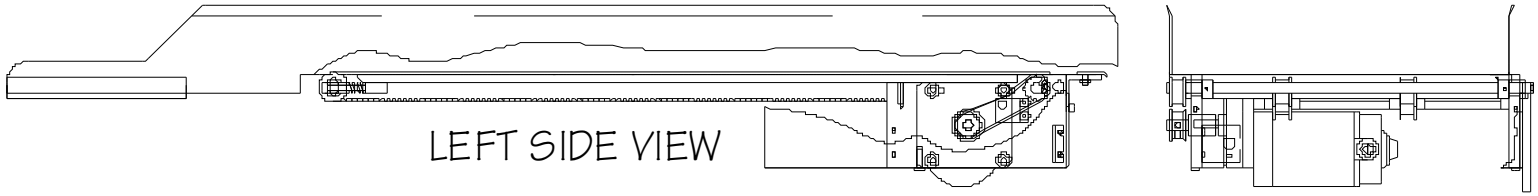
The 420T's feeder is bottom fed, top loading for continuous operation, with a capacity of 1500 sheets (20 lb stock) using the GBR Systems Creeper Conveyor.

Creeper Conveyor

The Creeper conveyor comprises two black rubber belts (1) driven by a motor (3) located on the bottom side of the hopper. Controlled by a paper level detector, the motor is activated when the detector indicates that paper has run low. When the paper level detector has triggered it sends a demand to the creeper to start the two long belts, carrying the paper, moving in the direction of the feeder's paper hopper and guided by the two side rails (2). The belts continue to move paper into the hopper until the demand wand (level detector) has been triggered to turn the belts off. This process continues until the machine is shut down. If the operator does not feed the creeper conveyor with additional stock and the paper hopper runs out of paper then machine will shut down indicating a no-feed error.



TOP VIEW



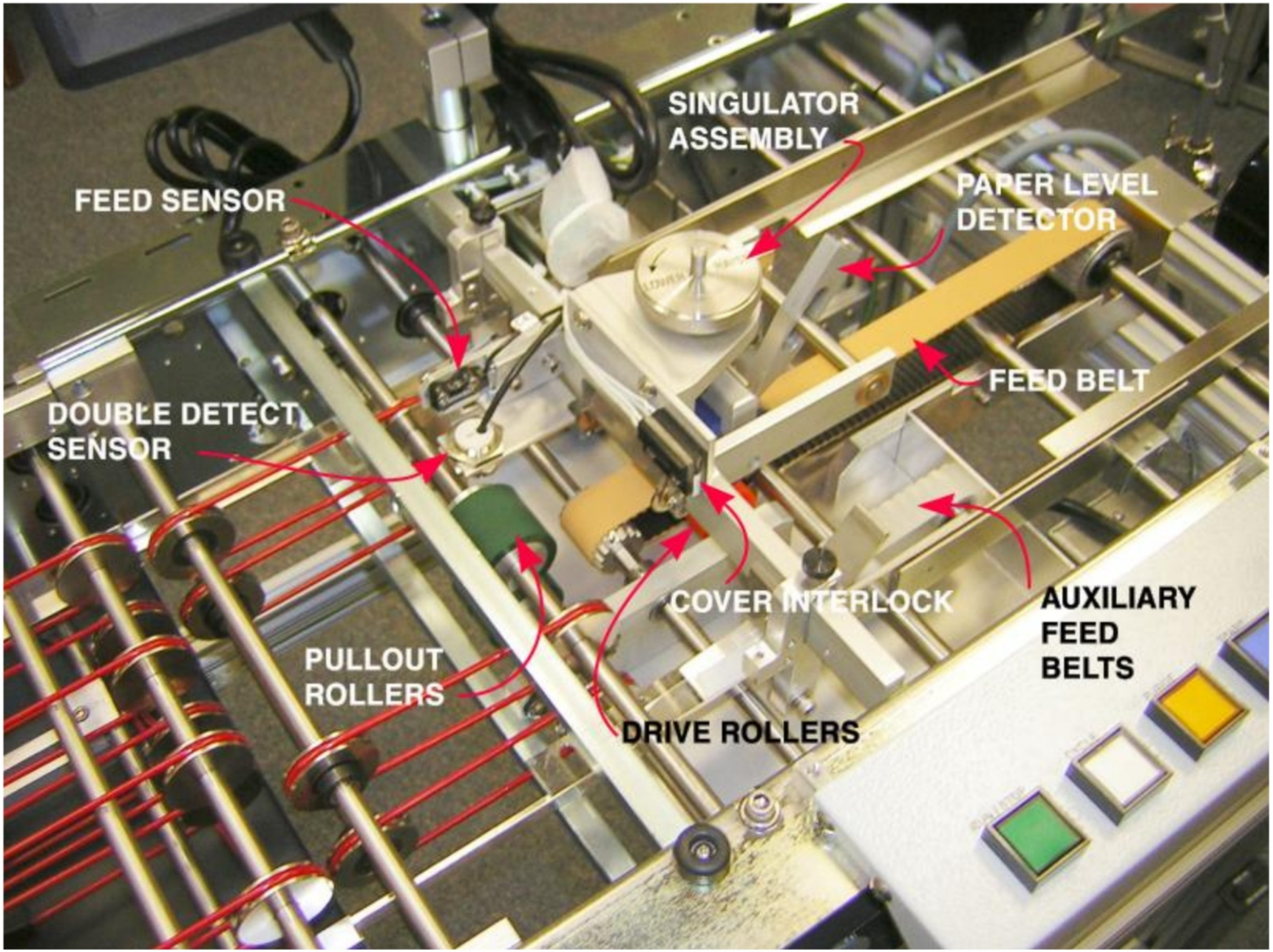
LEFT SIDE VIEW

Hopper and Feeder Paper Guide Rails:

The two stainless steel rails mounted on the sides of the creeper conveyor are adjustable via a locking handle at the rear. At the front they interlock with the feeder side rails, and lock to shafts running across the machine. Both sets of rails should be adjusted at the same time making sure there is only a slight angle toward the feeder paper hopper to guide the paper gently without pinching.

Paper Supply

The Creeper Conveyor supplies the bottom fed friction feeder continuously while the operator loads paper from the top. It has 4 mounts (2 each side, with set screws) in which the conveyor slides. The conveyor is located behind the feeder. Paper level in the feeder hopper is controlled by a demand switch also known as paper level detector. The position of the creeper conveyor is important to the smooth operation of the supply. During normal operation, a metal wand is adjusted such that the level of the paper sitting on the main feed belt is ¼ to 3/8 of an inch. The adjustment is made by turning the screw in the demand wand itself. Turning the screw to the right will cause the demand wand to back out of the paper hopper allowing more paper to be presented to the paper hopper by the creeper conveyor. Turning the screw to the left will have the opposite effect. The demand wand can also be set an different angles giving many adjustment positions for optimum paper stacking in the paper hopper. Mainly the demand wand is adjusted so that it rests on the top of the stack. As the stack of paper is consumed the demand wand will slowly lower itself until it triggers a switch, located on the singulator assembly. This trigger will turn on the creeper conveyor belts and slowly refill the paper hopper until the demand wand is lifted to its pre-adjusted setting.



420T Feeder Components

Feed Belt

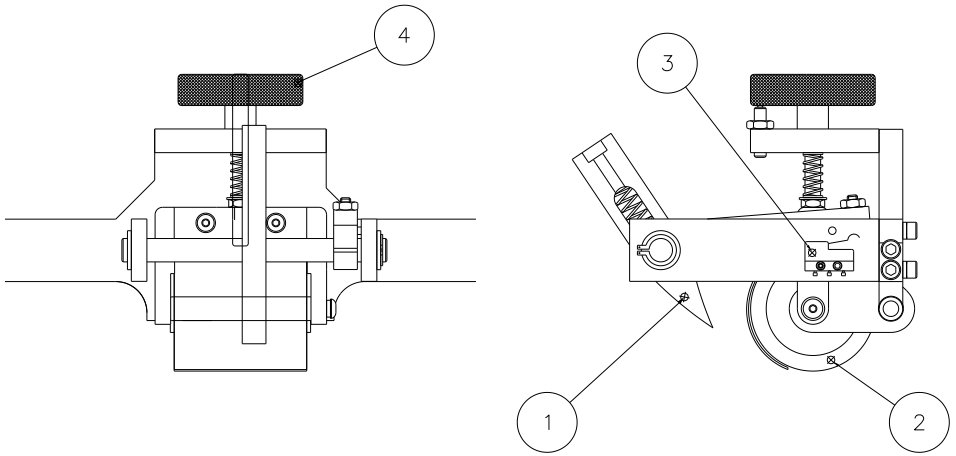
The Main Feed Belt is a one inch wide tan timing belt which drives the bottom sheet of paper under the singulator roller. Also called Singulator Belt.

Auxiliary Feed Belts

These are the two urethane belts located either side of the main feed belt. The auxiliary feed belts assist the main feed belt, smoothing variations in frictional drive (correcting erratic feeding of the paper).

Drive Rollers

These two rollers are located directly below the singulator. These are used in conjunction with the singulator to ensure only one sheet is fed at a time.



Item	Description	Part #
4	Singulator Adjust Knob	600B-16435-009
3	Paper Demand Switch	002B-08212
2	Singulator Roller	177-25913-600
1	Paper Level Detecter	600a-16435-005

Parts List

Singulator Assembly

Paper Level Detector

Also known as the demand switch, monitors the paper going into the feeder area. It's job is to limit and demand the amount of paper that is most productive to the feeding process. The Paper Level Detector monitors the paper through a metal wand.

Singulator

The singulator is a two inch stationary roller which rests above the feed belt in the center of the feeder and allows only the bottom sheet of paper to be fed while holding back all others.

A.2b SENSORS

Feed Sensor

The Feed Sensor monitors the output of the singulator for proper singulation or non-feed of paper. It is a light-actuated through-beam sensor, identified by an "F" on the top. The sensor is located on the left paper rail in the feeder section.

Double Detect Sensor (Prior to October-2005)

The Double Detect Sensor monitors the output of the singulator for double feeds. It is a light-actuated through-beam sensor, identified by an "D" on the top.

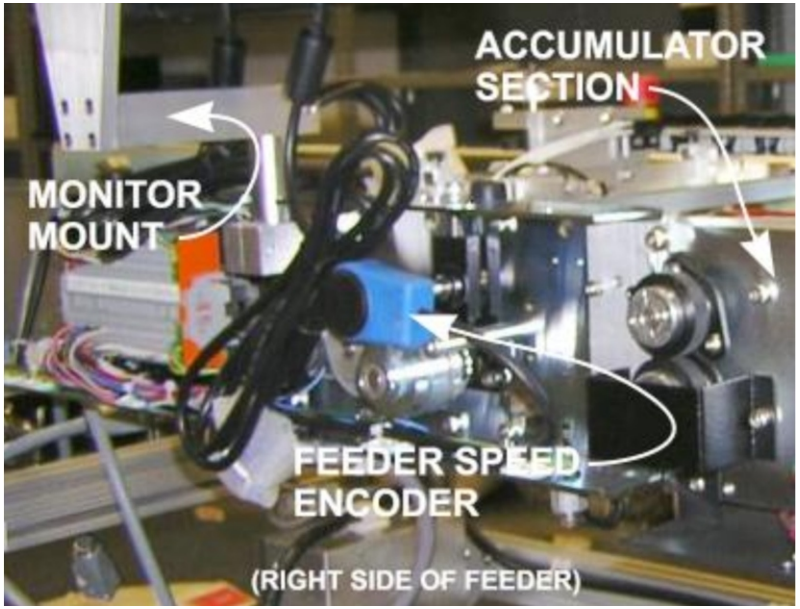
Start Read Sensor

The Start Read Sensor detects the leading edge of the paper to set the distance to the first mark in the read code block

Feeder Speed Encoder

A blue-clad optical encoder located on the right side of the upper pullout shaft. It is used to detect feeder run speed.

A.2c ACCUMULATOR SECTION



Right Side of Feeder

The accumulator receives and holds paper coming from the feeder. It will stack groups from one to seven documents. When the document group is complete, the computer releases the group to be folded by the folder.

Stacking Ramps

Stacking Ramps are the black Delrin wedges that stack successive pages of a document package in page sequential order.

Stacking or Dump Rollers

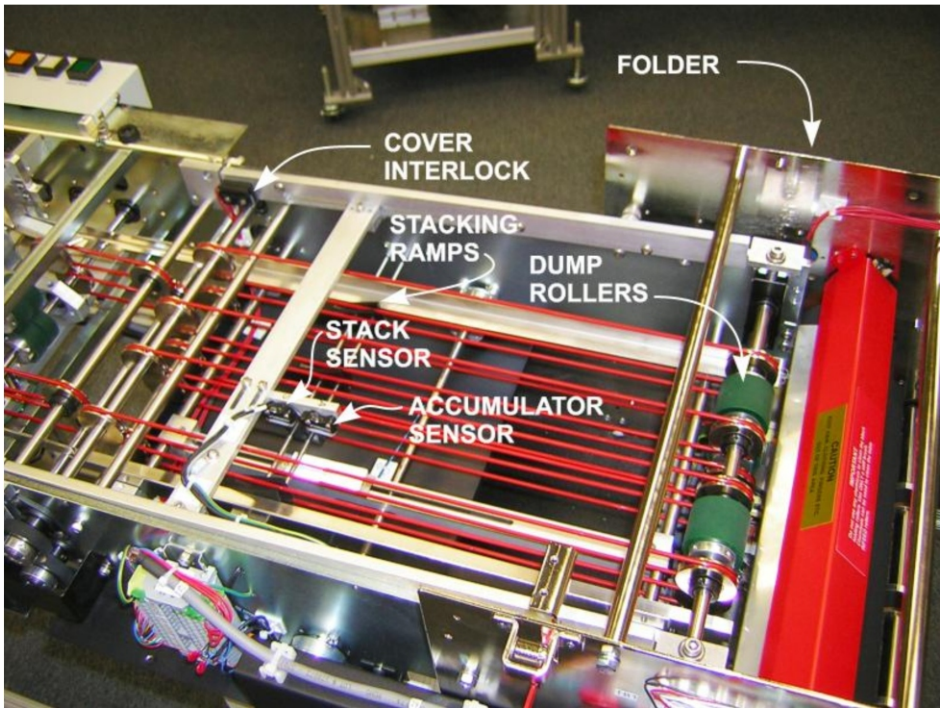
These are used to stop the paper and hold it in position. When released, the rollers drive the collected pages out of the accumulator.

Dump Brake

This prohibits the rollers from releasing paper from the accumulator.

Dump Clutch

This activates the stacking rollers, releasing the accumulated pages.



420T Accumulator

Accumulator Sensor

The Accumulator Sensor indicates presence or absence of a package in the accumulator. It also monitors package discharge when the dump clutch has been engaged.

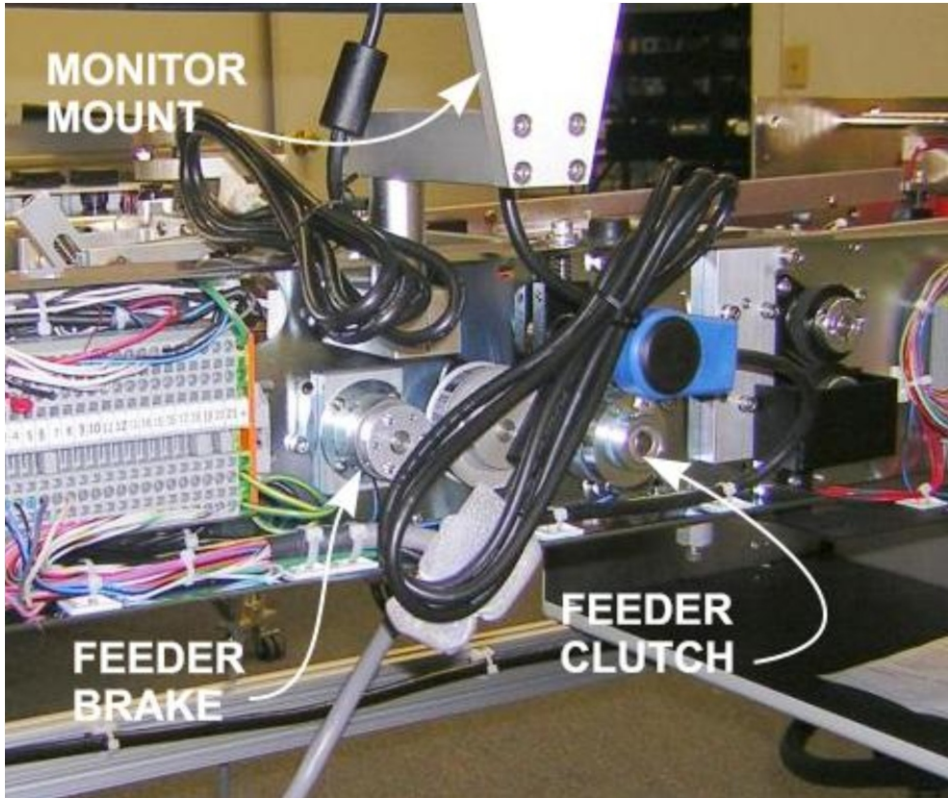
Stack Sensor

The Stack Sensor detects that the page group that was stacked in the accumulator has left the accumulator.

Feed Clutch

An electrical clutch that engages the feed belt by a signal from the controller.

Feed Brake

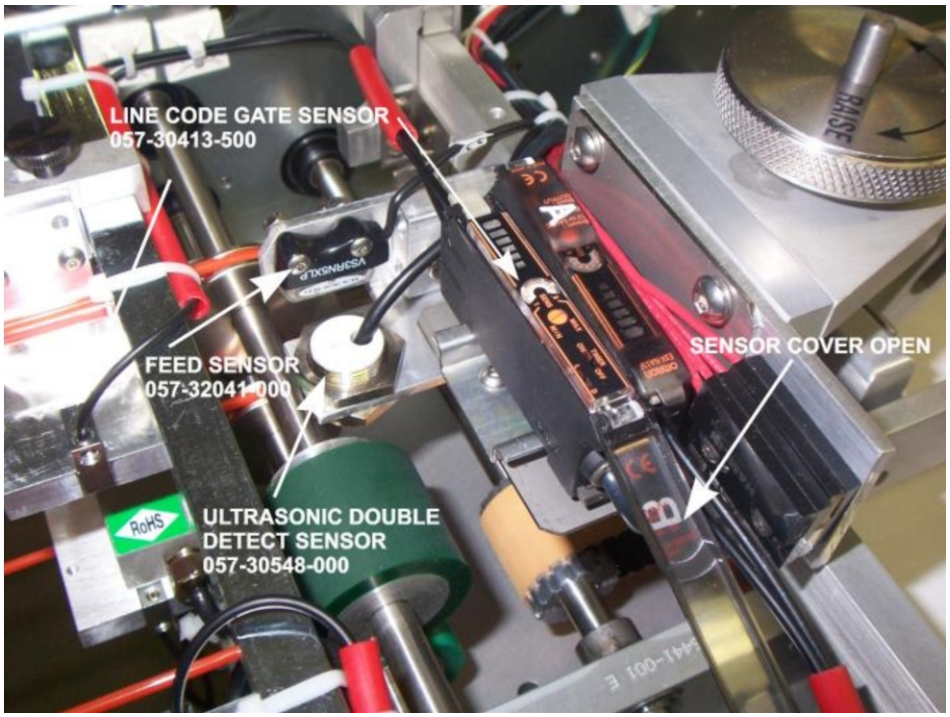


Feeder Brake, Clutch & Monitor Mount

The Feeder Brake and clutch work together to provide consistent feeding. In the 420T there are a number of settings that can be made to assist in the feeding of different types of paper. Using the touch screen the feeder can be setup for “pulse feeding” or “stream feeding”. Pulse feeding refers to the feeding of paper one sheet at a time by turning the clutch on and off for each sheet of paper fed. Stream feeding refers to the feeding of paper by allowing the singulator, if set up correctly, to regulate the sheets being fed.

Stream feeding is also the faster method of feeding with the shortest gap between the sheets.

Read Gate (Line Code Gate) Sensor



Feeder Sensors

Thru beam sensor mounted within the brackets holding the F40 Reader. It tells the reader to begin looking for line code marks when the sensor sees the leading edge of the paper.

Feed Sensor

The Feed Sensor monitors the paper output of the singulator for proper singulation or non-feed of paper. It is a retro-reflective sensor that requires a reflective surface to complete the beam and it is identified by a label marked with an “F”. The sensor is located on the singulator assembly downstream from the singulator.

Double Detect Sensor

The double detect sensor is an ultra sonic sensor that does not require electrical adjustment. The mechanical position of the sensor is 40mm above the mounting plate +/- 2mm. The distance and the alignment is

critical. The sensor determines that two sheets have been fed by detecting an induced field between the two pages.

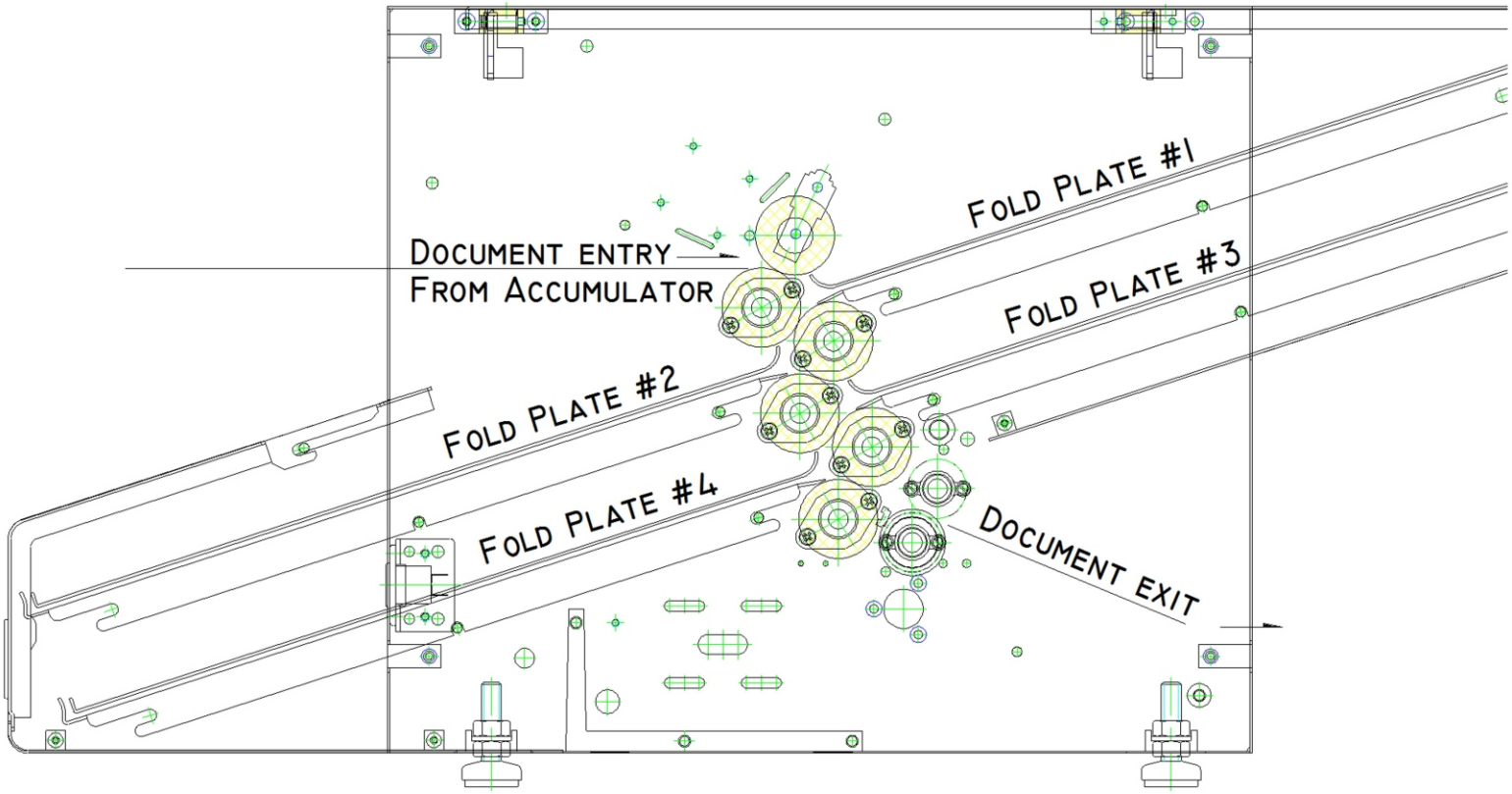
A.2d FOLDER

The folder is capable of placing 1 to 4 folds in a C, Z, V, or double V configuration. Documents are collected in the Accumulator and released by the Dump Rollers into the folder. A maximum of 7 pages can be fed into the collected and fed into the folder.

Fold Plate #1 Fold Plate #3 Fold Plate #4 Fold Plate #2 Document entry Document exit From Accumulator.

Buckle Plates

Manually adjustable plates or pockets that control the distance of the fold from the edge of the paper. The fold style can be changed by adjusting the fold plates.



Folder RH View

Folder Rollers

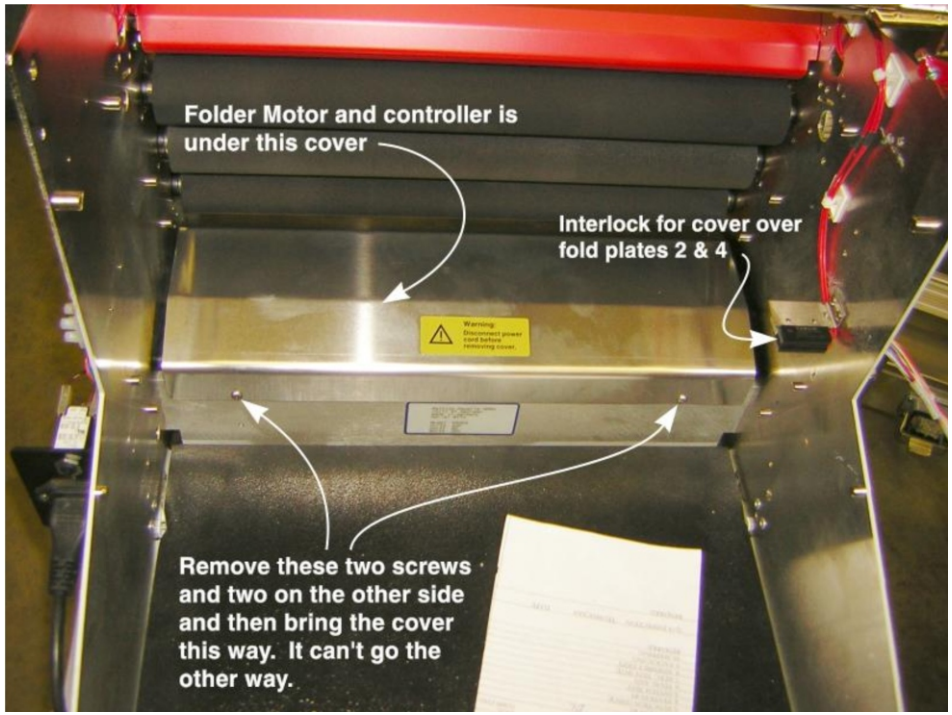
Used to nip the paper as it is buckling, creating the fold.

Folder Drive Motor & Controller Board

A 110VAC motor that is controlled by a circuit board to achieve a constant speed. The motor drives all folder roller shafts.

Folder Drive Motor & Controller Board

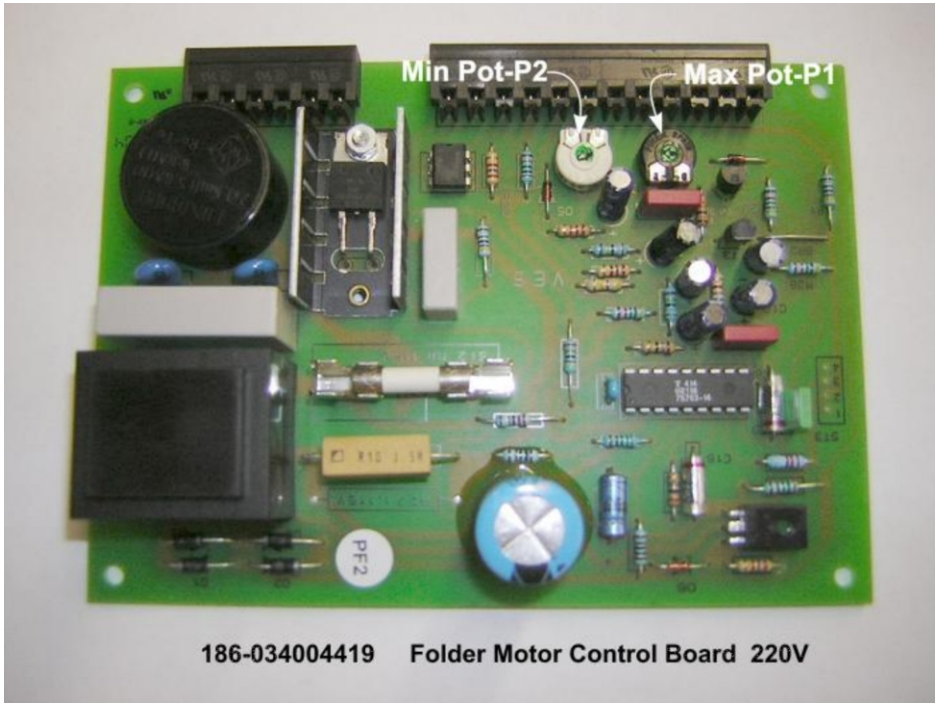
A 110VAC motor that is controlled by a circuit board to achieve a constant speed. The motor drives all folder roller shafts.


Folder Motor and controller is under this cover
Interlock for cover over fold plates 2 & 4
Remove these two screws and two on the other side and then bring the cover this way. It can't go the other way.

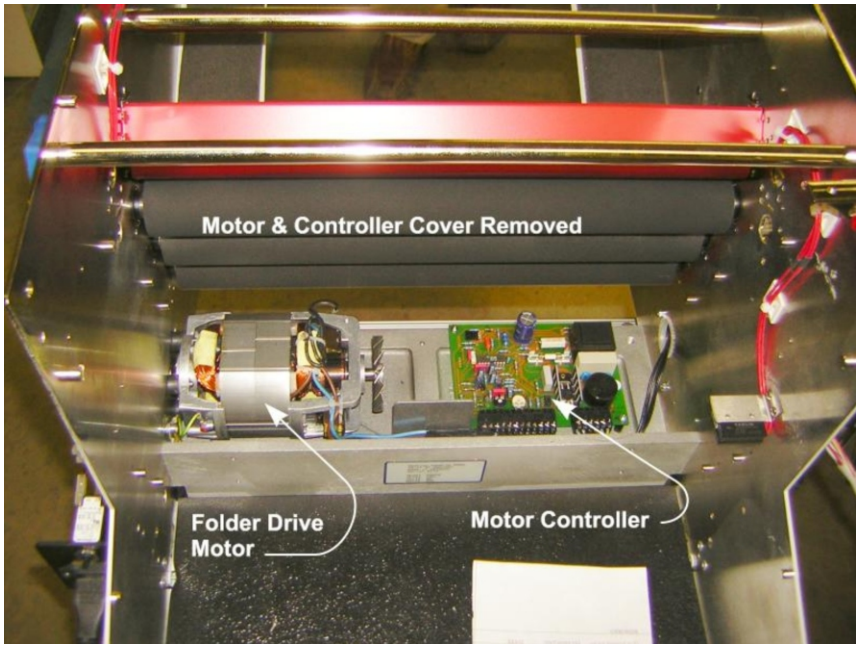
Folder Motor Cover

Adjusting The Folder Speed:

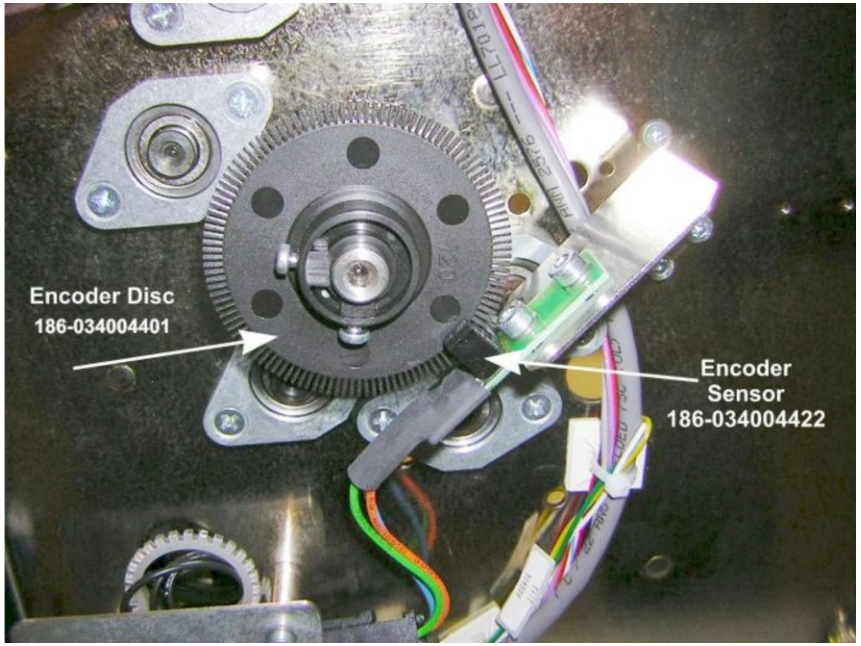
Although the folder speed has been set at the factory it may be necessary to



reset it if replacement of the control board is required. The two controls on the board along with the speed adjust control (mounted on the right side of the folder under the cover) will establish the minimum and maximum speed settings. You will be able to set the speed simply by following this adjustment procedure. Set the speed adjust control to minimum (all the way counter-clockwise). Adjust the Min Pot-P2 until the folder just begins to move and then back down until the folder stops moving. This sets the low speed. Turn the speed control to max (completely clockwise) and adjust the Max Pot-P1 to the required speed according to the specs, which is approx. 110 IPS. This sets the top speed and it is always a good idea to check the low speed again just in case by turning the speed control all the way down again. If everything works as expected then you are done with the adjustment.



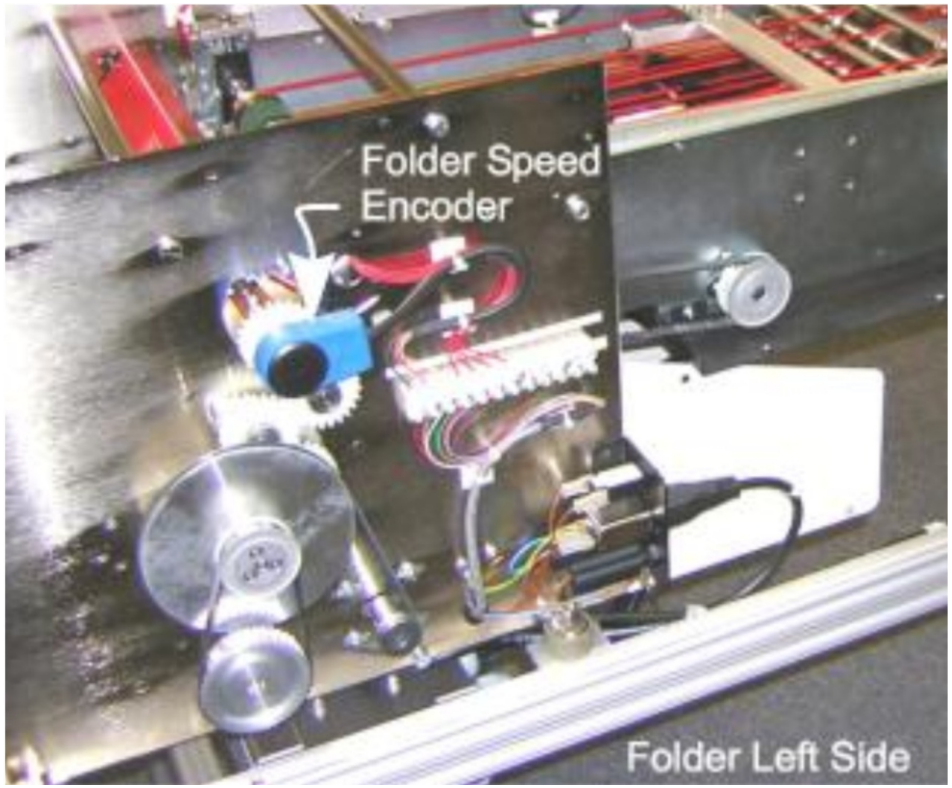
Folder Motor Cover Removed



Folder Encoder & Sensor

Folder Speed Encoders

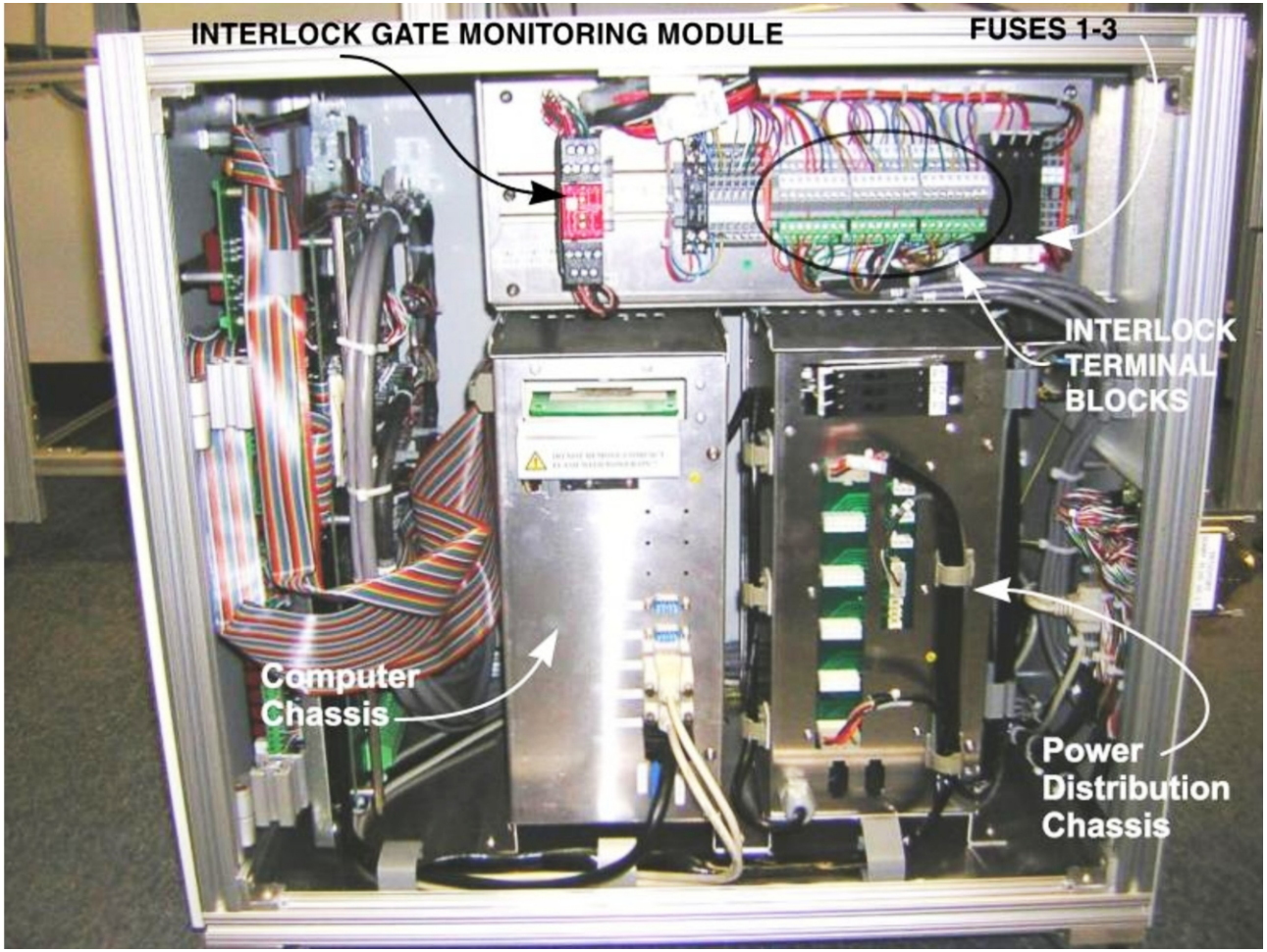
There are two folder speed encoders. The one seen in the picture below is used to report the folder speed to the operator/maintenance person through the monitor. The lower left picture is the other encoder used by the folder control board.



Folder Left Side

The pulses generated by the encoder Disc and Sensor, shown in the picture on the lower left of this page, are used by the motor control board to maintain a set speed. These pulses are used by the circuitry to keep the motor at the speed set by the speed control.

A.2e Components of the Controller Box



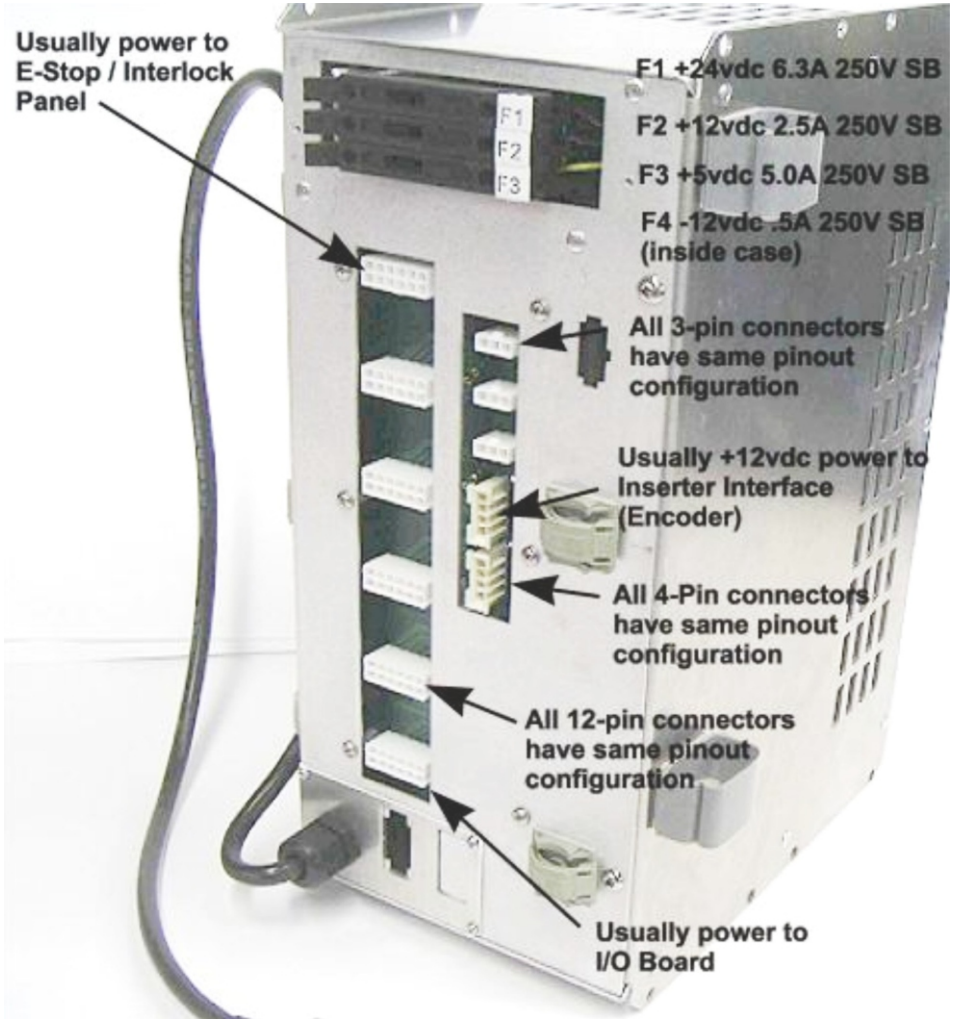
Inside The Computer Box

DC Power Distribution Chassis:

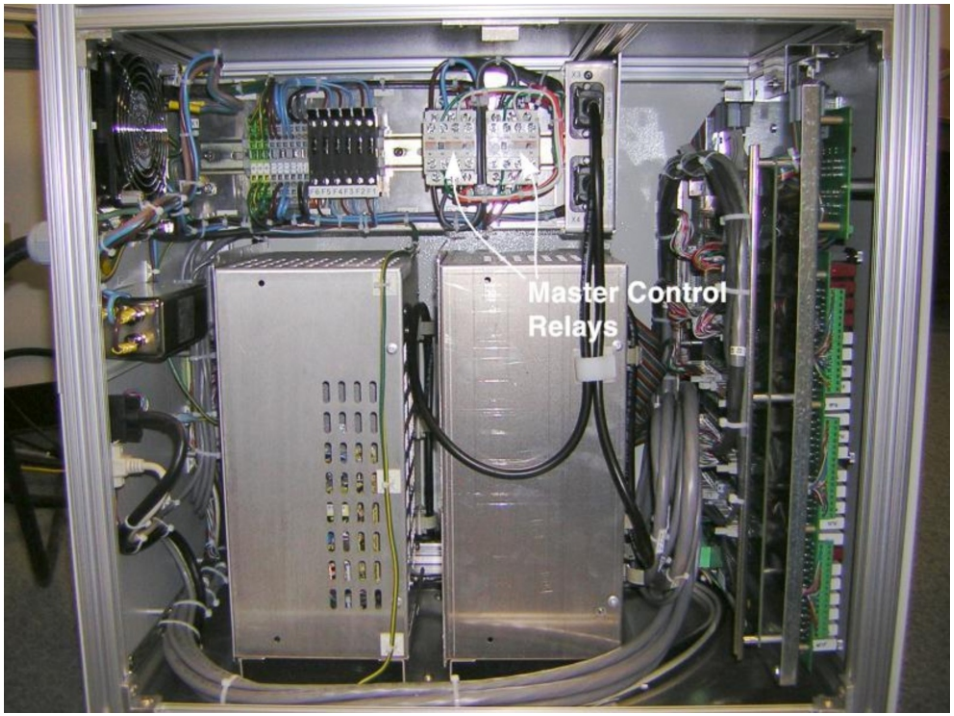
With cover removed you can see The DC Power Distribution Chassis, the Computer Chassis, Interlock Terminal Blocks, Fuses 1-3 and the Interlock Gate Monitoring Module.

Connections of the DC Power Dist. Chassis are detailed here for clarity.

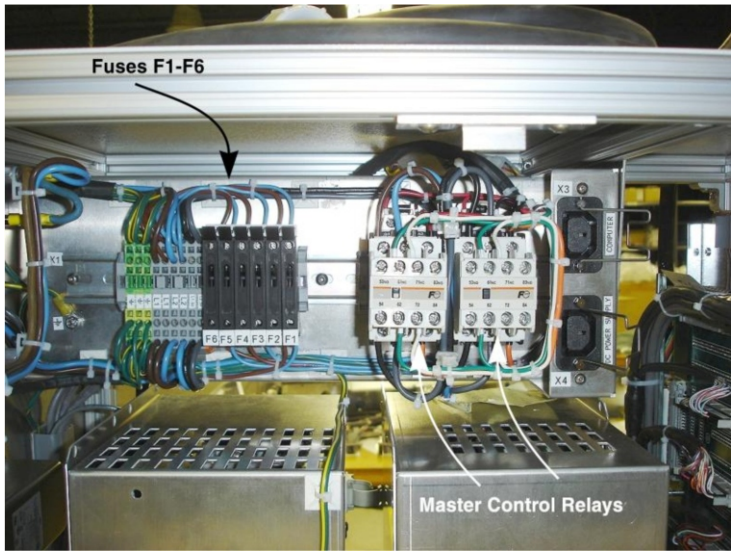
This picture of the DC Distribution Chassis show typical connections and values used in the assembly of the machine.


Usually power to E-Stop / Interlock Panel
F1
F2
F3
F1 +24vdc 6.3A 250V SB
F2 +12vdc 2.5A 250V SB
F3 +5vdc 5.0A 250V SB
F4 -12vdc .5A 250V SB (inside case)
All 3-pin connectors have same pinout configuration
Usually +12vdc power to Inserter Interface (Encoder)
All 4-Pin connectors have same pinout configuration
All 12-pin connectors have same pinout configuration
Usually power to I/O Board

DC Distribution Chassis

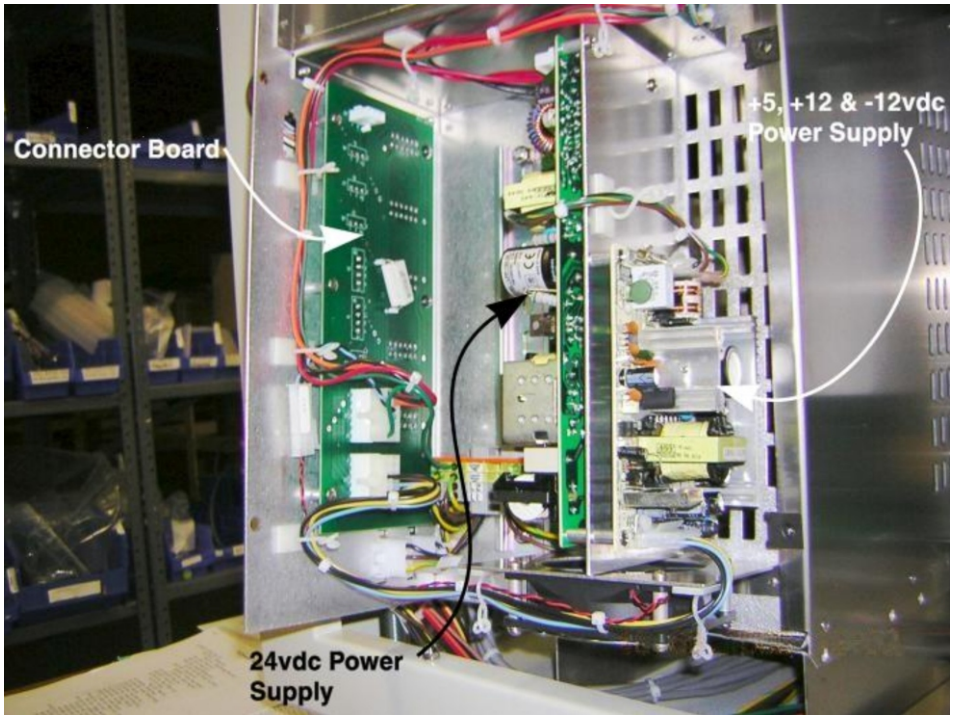


Master Control Relays & Safety Interlocks



Fuses & Master Control Relays

Master Control Relays: Electric safety interlock switch

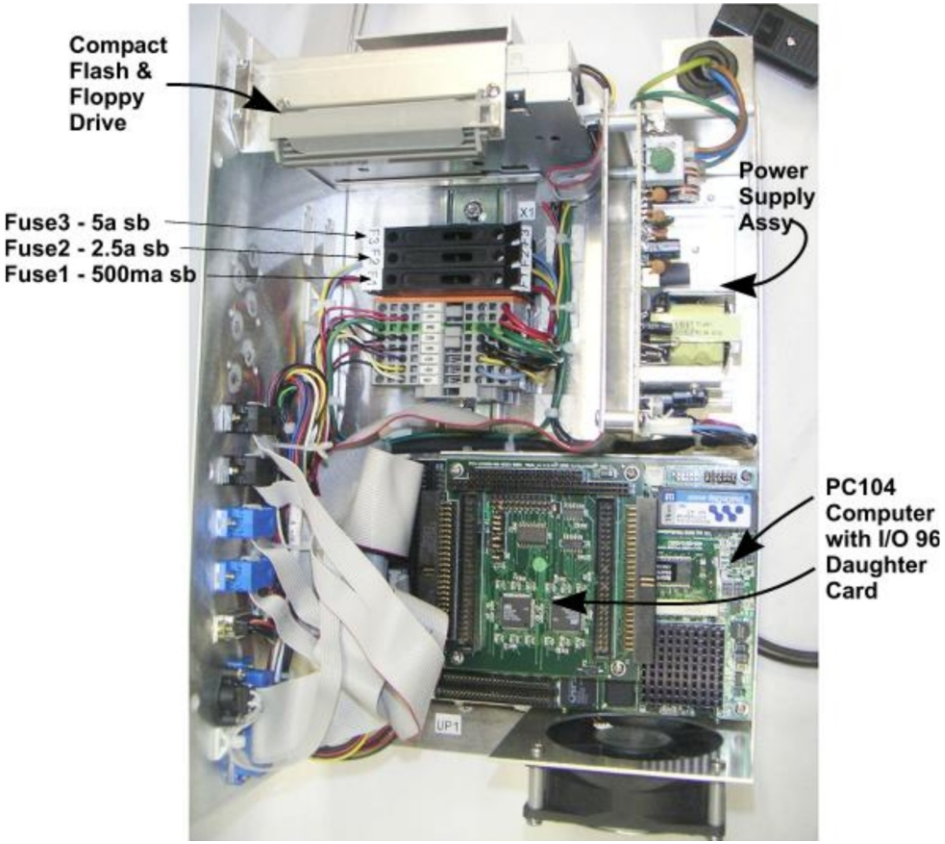


Inside The DC Distribution Chassis

Inside The DC Distribution Chassis:

Inside The Computer Chassis:

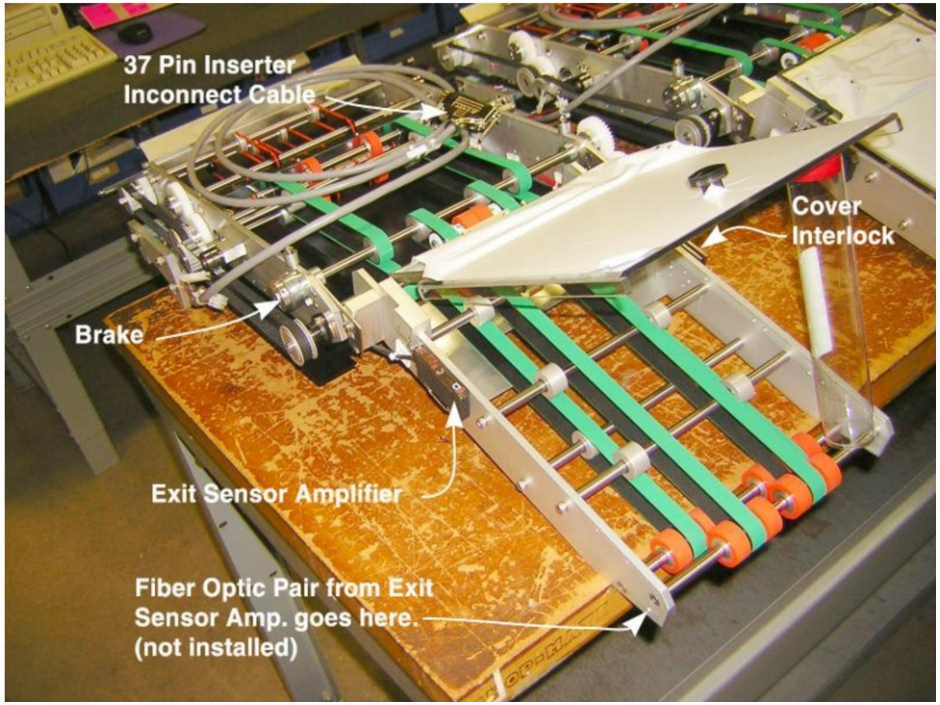
Please pay regards to the warning that you should **NOT** remove the Compact Flash without first shutting down the system and turning power off!



Inside The Computer Chassis

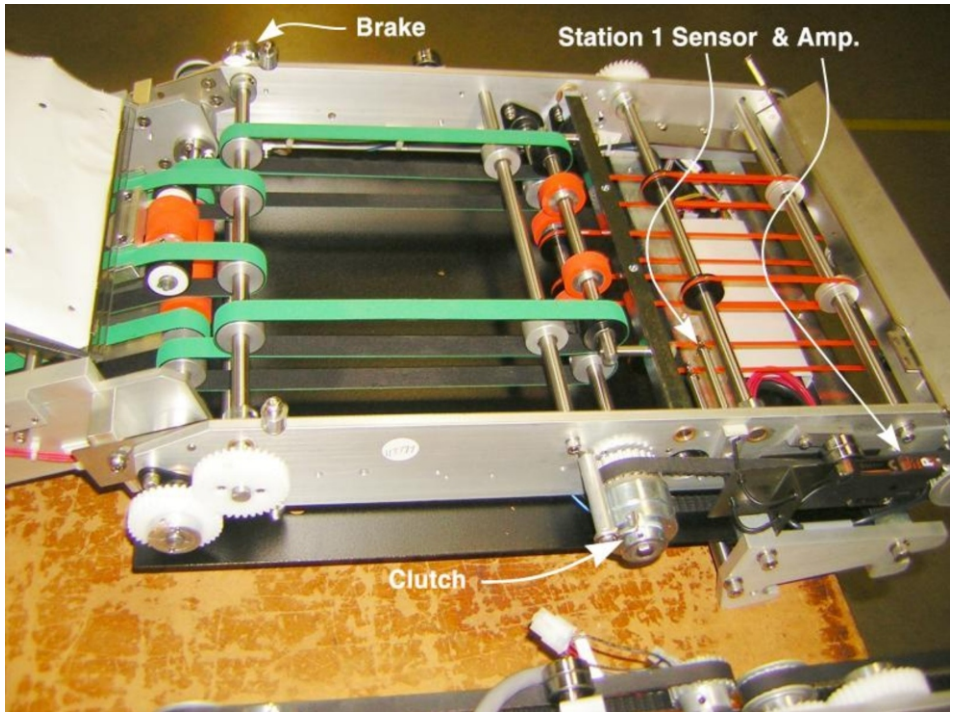
Transfer Conveyor Sensors

These sensors monitor the flow of paper into and out of the transfer conveyor. The Station 1 sensor checks to see that a folded package has arrived telling the system there are no jams inside the folder. The Exit sensor watches to see that a folded package has left the transfer conveyor. There are times when the 420T system has been placed on line with an inserter that the Exit sensor is not used and instead an Open Station sensor is located at the drop zone on the inserter. One and only one of these sensors are used at one time depending on the system configuration. The system will use either the exit sensor mounted on the transfer conveyor or the Open Station sensor mounted on the inserter.



Tranfer Conveyor

It acts to confirm the processing of specific documents. The first station that a document stops in the transfer conveyor is also checked by the computer to see that a document has arrived and also when is has left the station.



Transfer Conveyor Alternate View

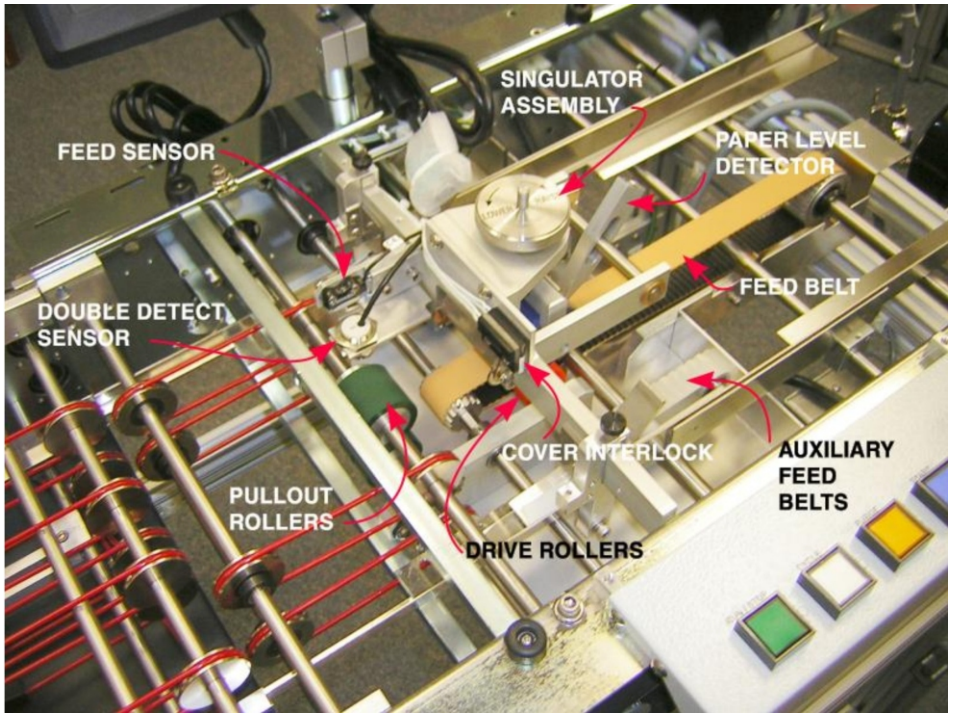
A.2f EMERGENCY STOP INTERLOCKS

The main E-stop located on the operator panel will interrupt power to the conveyors and folder when pressed down. All motors will halt immediately. This switch must be twisted to bring it back to it's original upper position.

An extra contact is provided on this E-stop switch that is routed to pins 30 and 33 of the Inserter Connector located on the adaptor plate on the end of the cabinet. This will effect an E-stop to an external device when this contactor is wired to the E-stop circuit on that external device (e.g. Pinnacle inserter).

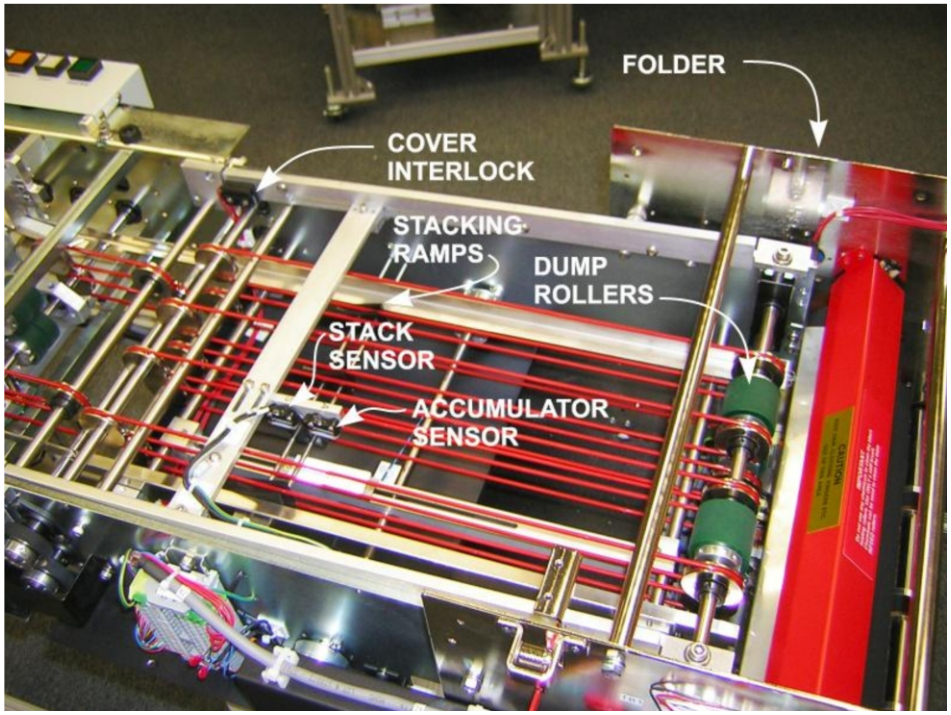
A connection to the 420T interlock string has been provided on pins 28 and 29 of the same Inserter Connector which allows an external device (e.g. Pinnacle inserter) to E-stop the 420T. For this E-stop string to be functional a blue jumper across pins 24 and 25 of Module #7 on the I/O Board must be removed. If this E-stop string is not used this jumper must be in place. Pin 11 of this connector also provides an "Interlock Sense" signal to an external device.

There are six (6) safety interlock switches which will interrupt power to the conveyors and folder whenever the magnetic field of the switch is broken.



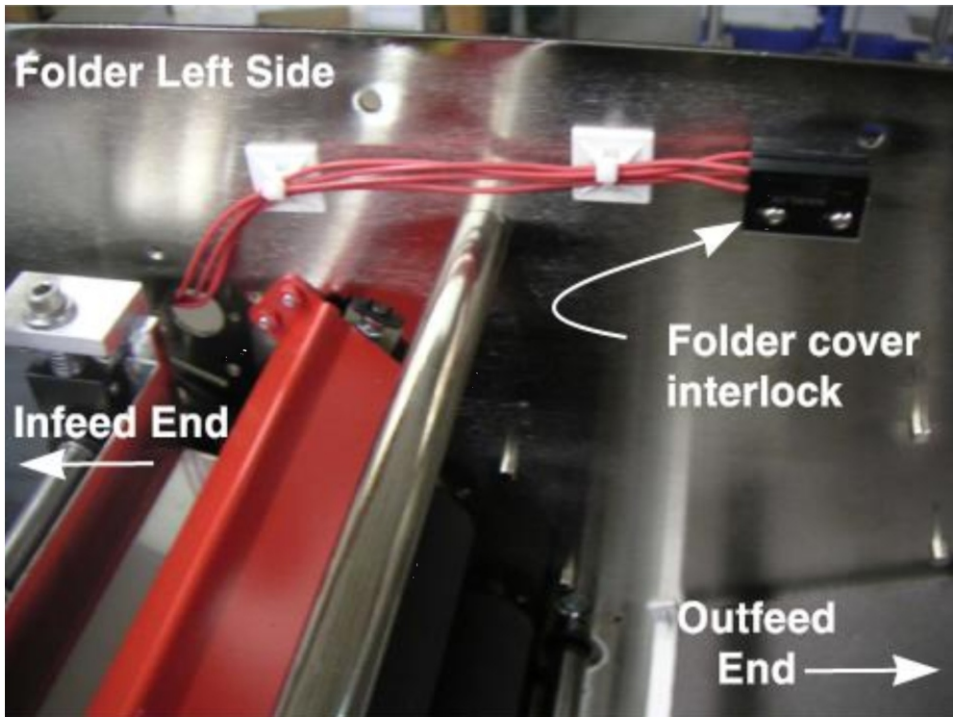
Feeder Without Cover

Under the cover located over the singulator mechanism



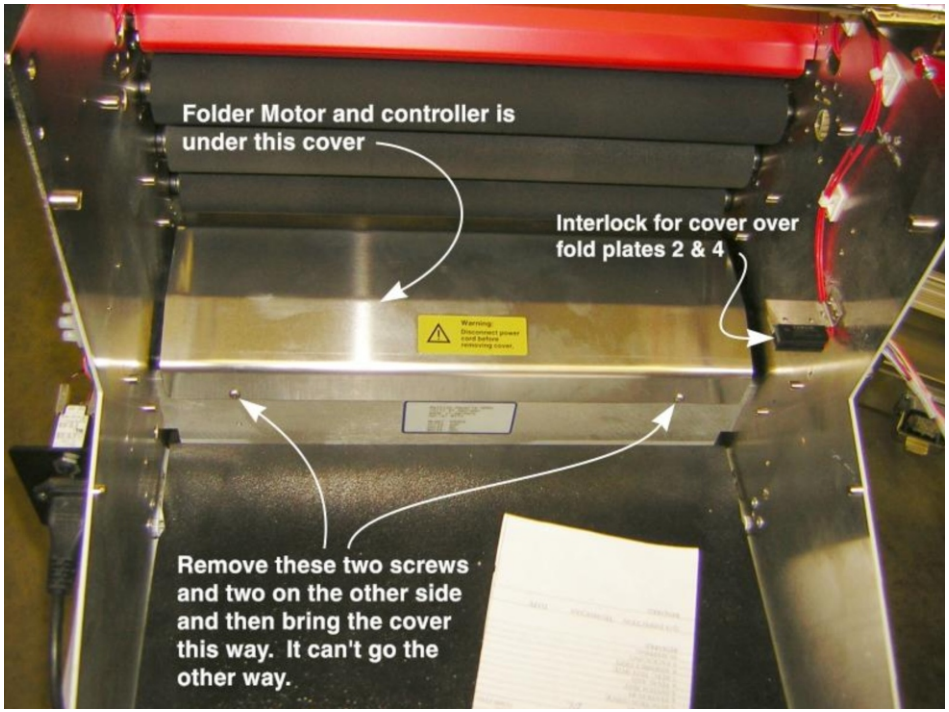
Accumulator Section

Under the cover located over the accumulator section



Folder Interlocks

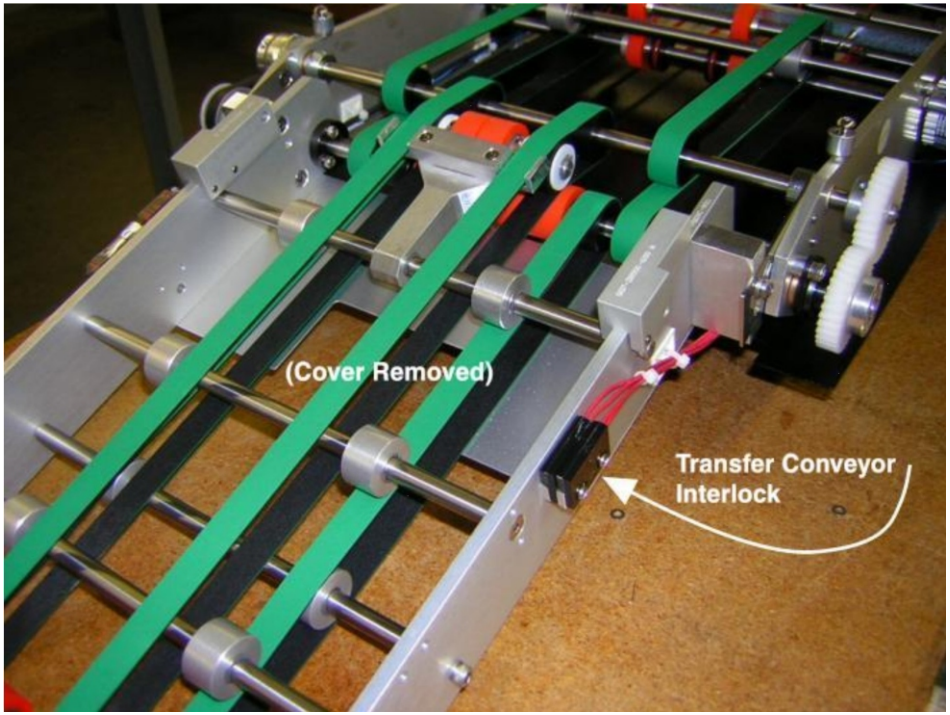
On the top cover of the folder.


Folder Motor and controller is under this cover
Interlock for cover over fold plates 2 & 4
Remove these two screws and two on the other side and then bring the cover this way. It can't go the other way.

Lower Cover Under 2 & 4 Buckle Plates

On the lower cover under the (#2 & 4) buckle plates

On the folder and transfer conveyor meeting point (interrupts power when the transfer conveyor is removed).



Under the cover (removed) of the Transfer Conveyor

A.3 Machine Specifications

Listed below are specifications for the 420T:

Throughput

Speed: Max. 24,600 documents per hour

Material

Paper Weights: 20# (75 GSM) Inquire for heavier weights

Paper Size: 7” x 7" (178 mm x 178 mm) to 11” x 14” (305 mm x 356 mm)

Loading Capacity: 2,000 sheets of 20# bond.

Fold Types; “C”, “Z”, “V” & DOUBLE “V”

Porosity: 20 Gurley seconds

Stiffness: 20 Lb. Stock 170-225 Gurley Stiffness Units

24 Lb. Stock 250-300 Gurley Stiffness Units

Cross Grain Stiffness: 20 Lb. Stock 8~125 Gurley Stiffness Units

24 Lb. Stock 12~150 Stiffness Units

Moisture Content 4-6% by Weight

Components:

Feeder: Bottom feed, top loading for continuous operation.

Optical Reader: Optical code reading for group batch recognition, sequencing and double printing control of 1 to 7 page document groups. Larger group batch setting available upon request.

Folder: 4 plates.

Group selector: Manual group selection for 1 to 7 sheets.

Counter Modes: Total count, batch count, resettable count.

Output Conveyor Options:

Version 1—with shingling output conveyor/stacker

Version 2—with intelligent transfer conveyor interface to gripper arm of inserter’s insert station.

Version 3—with a buffering, intelligent transfer conveyor interfaces to an open feed station of inserter. The GBR 420T can also convert an intelligent, continuous form mail inserting system to a cut sheet operation.

Controller: Adjustable operator’s panel with readout and push-button access to all system functions. System is microprocessor controlled with self-diagnostics and error display including double, misfeed and jam detection.

Electrical Service

110 Volts, 1 Phase, 60Hz, 9 Amp.

220 Volts, 1 Phase, 50 or 60Hz, 5 Amp. Must purchase optional Power Transformer

1,000 BTU/hr

Fuse List - Refer to Section D10

Dimensions

Length: 120" (3048 mm) Model 420T-1

Width: 26" (660 mm)

Height: 52” (1321 mm)

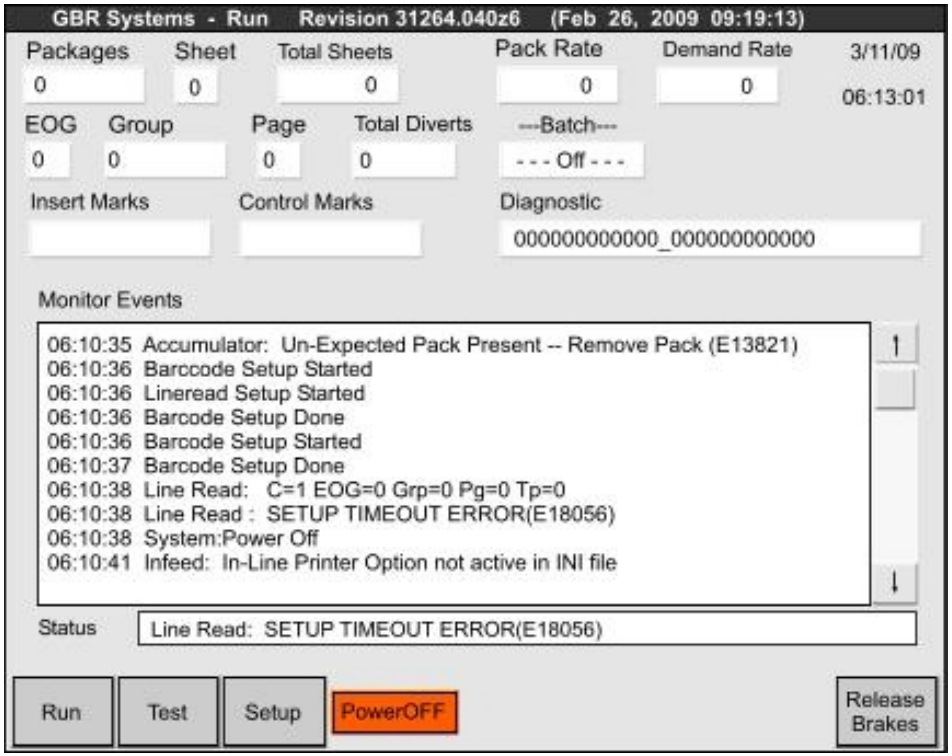
Weight: Net approx. 350 lbs. (159 kg)

Read Options

GBR Line Code

Bar Code (3 of 9), (2 of 5) (128)

A.4 RUN SCREEN



This screen is displayed continuously for informational purposes until “Test” or “Setup” is selected.

(See A.7 of this Section for “Setup” Screens)

(See Section C “Problem Analysis” for “Test” screens.)

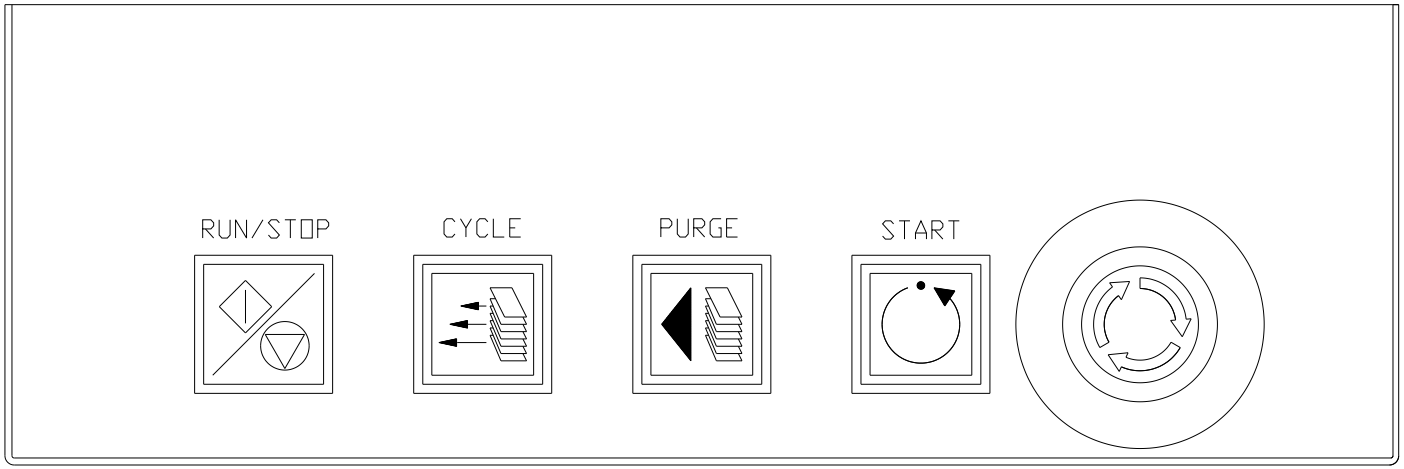
- **Run** – The current screen.
- **Test** – Press to enter diagnostic screens (for more information, refer to Section G).
- **Setup** – Press to enter setup screens (for more information, refer to A.7).
- **Power On/Off Indicator**: Displays status of machine.
- **Release Brakes** – Releases and activates Accumulator and Feed Brakes to allow jam clearing.

Information Displayed:

- **Revision** (Software) and **Build Date** – top line
- **Packages** – Total package counter. To reset go to **System Setup Screen**. Also resets during bootup.
- **Sheet** – Displays the # of sheets in the accumulator.
- **Total Sheets –** Displays the number of sheets fed from the time the system was powered up. Resets on machine power down.
- **Pack Rate** – Used to monitor throughput of the 420T. Calculated at every pack dumped from accumulator (not averaged).
- **Demand Rate**– Displays the package demand rate from the inserter. Calculated at every demand signal transition (not averaged).
- **Date and Time** – Displayed in the upper right hand corner.
- **EOG** – Displays end of group (ready for dump).
- **Group** – Displays group sequence number after read.
- **Page** – Displays page sequence number after read.
- **Total Diverts** – Displays the number of diverts since the start of the run.
- **Batch** - displays “Batch Sheet” or “Batch Package” count, resets on sequential stop
- **Insert Marks** – Displays which insert are selected after each read.
- **Control Marks** – Displays any controls marks, such as IM (Ink Mark) after read.
- **Diagnostic** – Internal timing
- Monitor Events – Displays event history, however, entire list is lost when power is turned off.

Status – Displays machine status such as “Power Off”.

A.5 KEYBOARD OPERATION



RUN / STOP

- Press to start motors and enter ready mode.
- Press while in ready mode to shut down the 420T.
- (Press E-Stop to shut down the 2 Stage Conveyor)

CYCLE

- Press quickly to feed one sheet.
- Repeat until **EOG** on display is showing a “1” then press purge to release the package.
- Press and hold **CYCLE** to start continuous feeding.

PURGE

- Press after manually filling the accumulator to discharge package into the folder.

START

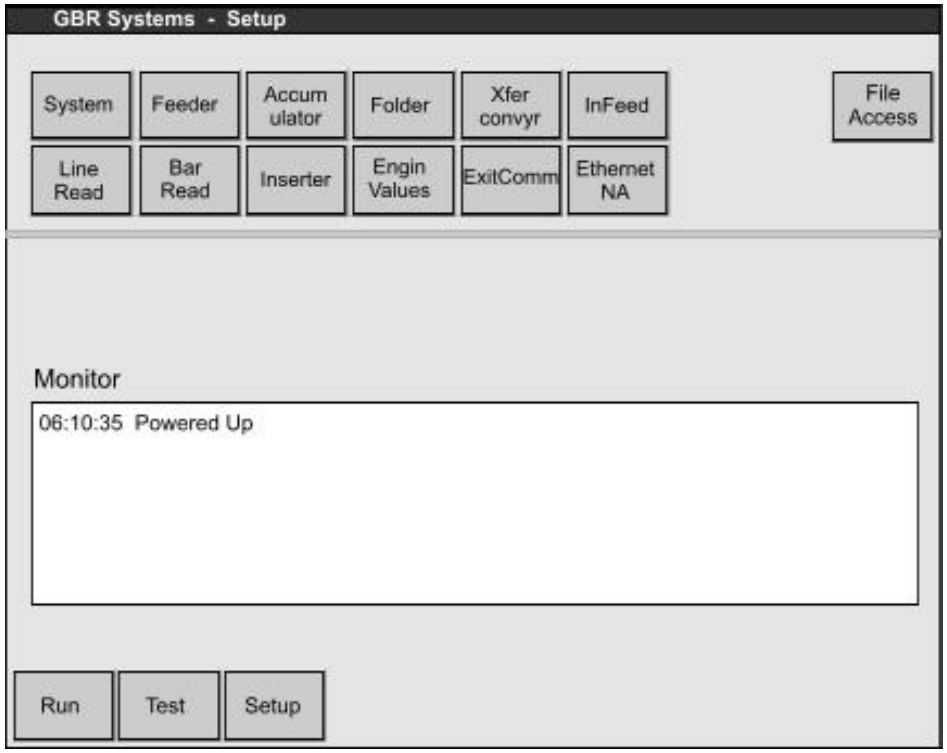
- Press after interlock is broken or E-stop condition. This will start the 2 Stage Conveyor.

E – STOP

- Press to shut down all motors on the 420T in emergencies.
- The top of the E-Stop switch must be turned to release the switch to the up position.

Lifting any cover will also shut down all motors on the 420T.

A.6 SETUP SCREENS



Note: The exact screens and functionality are software version dependent. Specific features may be available or not, or have default settings according to the software version.

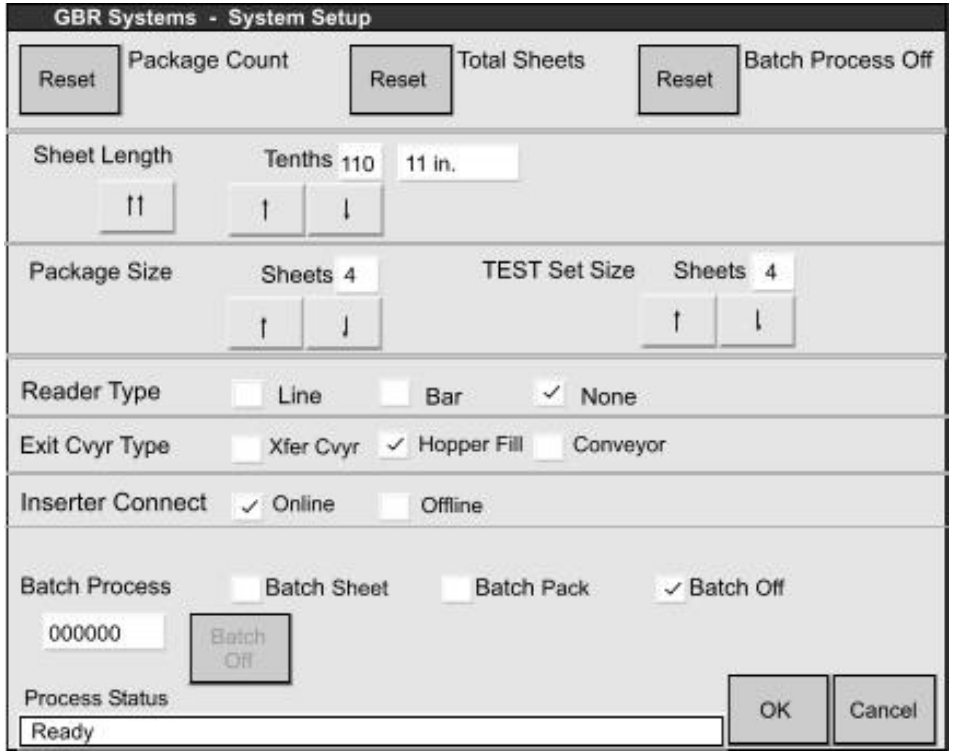
Press Setup while in the Run screen.

This screen provides access to all 420T setup screens.

Press **Run** to return to the “Run” screen.

Note: Normal factory settings are in bold font.

A.6a System Setup



Package Count “Reset”:

- Resets total package count (“Packages”) found in Run screen. This value will also reset automatically on power down of machine.

Total Sheets “Reset”:

- Resets total sheets count found in the Run Screen. This value will also reset automatically on power down of machine.

Batch Process “Reset” (On/Off status is also displayed):

Resets the “Total Sheets” or “Total Packs” found in the Run screen depending on which option was selected. This value will also reset automatically after the sequential stop determined by the batch size entered. A sequential stop occurs when the last pack is accumulated, the machine

stops feeding, purges the accumulator and transfer conveyor to the inserter, then powers down automatically.

Sheet Length:

- Double Arrow Up" button increments to standard sheet sizes: A6, 8.5", **11",** 14", A4, and A5
- "Single Arrow" buttons adjust sheet length in tenths of an inch (range = 63 to 154)

Package Size:

- Input up to 14 which is the maximum pages allowed in the accumulator. 1 to 14, Default = **1**
- For Read, 1 greater than maximum expected (5 for the Line Code test set); or number of fixed pages with no Read.

Reader Type:

- Line, Bar, or **None** (Off)

Exit Conveyor Type:

- **Xcvyr** – Select this option if using any one of several options of document transfer to inserter. Then select the required type of transfer desired by going to **Xfer Cvyr** screen to choose.
- **Hopper Fill** - Select "Hopper Fill" when the inserter will be taking the folded documents from an insert station hopper either with or without a demand signal. See Eng. Value 20. With no Inserter
- **Conveyor** – with or without demand. See Eng. Value 20. With no Transfer Conveyor (**Xfer Cvyr**). Exit at Folder with Folder Exit Sensor.

Inserter Connect:

- **Inserter Online**. By demand. See **"Inserter Setup 1"** screen for Open or Gripper setup.
- **Inserter Offline**. Selecting this allows the inserter to run independent of the 420T without

Batch Processing:

- Batch Sheet
- Select job size by entering the number of sheets to run. When selected, the "Batch Off" button changes to "Set Sheets." When "Sheet" is selected and a batch size entered, the machine will complete the package containing the last sheet.

Batch Package:

- Select job size by entering the number of packages to run. When selected, the "Batch Off" button changes to "Set Packs."

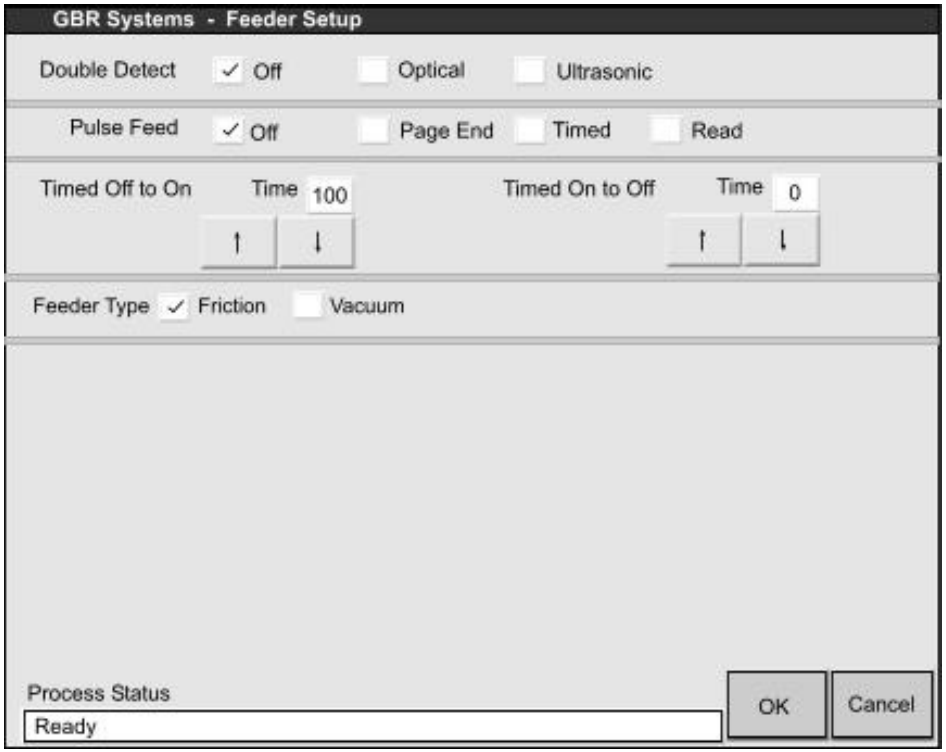
Batch Off:

- Disables Batch Processing.

"Batch Off" Button:

- Changes to "Set Packs" or "Set Sheets" depending on the option selected. Press to enter batch value—a numeric keyboard is displayed—then press "=" to set. Batch value is displayed to the left of the button. This button is not available when Batch Processing "Off" is selected.

A.6b Feeder Setup



Double Detect Select:

- Select to have the 420T detect double feeds. Indicate **Optical** or **Ultrasonic**.
- Deselect if paper stock is causing false double detects.

Pulse Feed:

- Deselect to engage clutch for the entire pack: a.k.a. “Stream Feed mode.” When selected, the feeder will place a larger gap between the sheets by turning on and off for each page.

Page End:

- Clutch is off at lead edge of page, on again at trail edge of page.

Timed:

- (Default) “Timed Off to On” and “Timed On to Off” must be set when using this option. Once the clutch is activated and the document is fed, by default it is turned off when the lead edge of the document is detected by the feed sensor. These timed settings vary how long the clutch stays off and how long it stays on.

Read:

- Clutch is off at lead edge of page, on after read received.

Timed Off to On (Extended Clutch Off Time)

- Use when “Timed” is selected.
- When set to “0” the clutch activates when the trailing edge of the document is detected by the feed sensor. Increasing this setting increases the time the clutch remains off.
- The higher the number, the larger the gap between sheets.

Timed On to Off (Extended Clutch On Time):

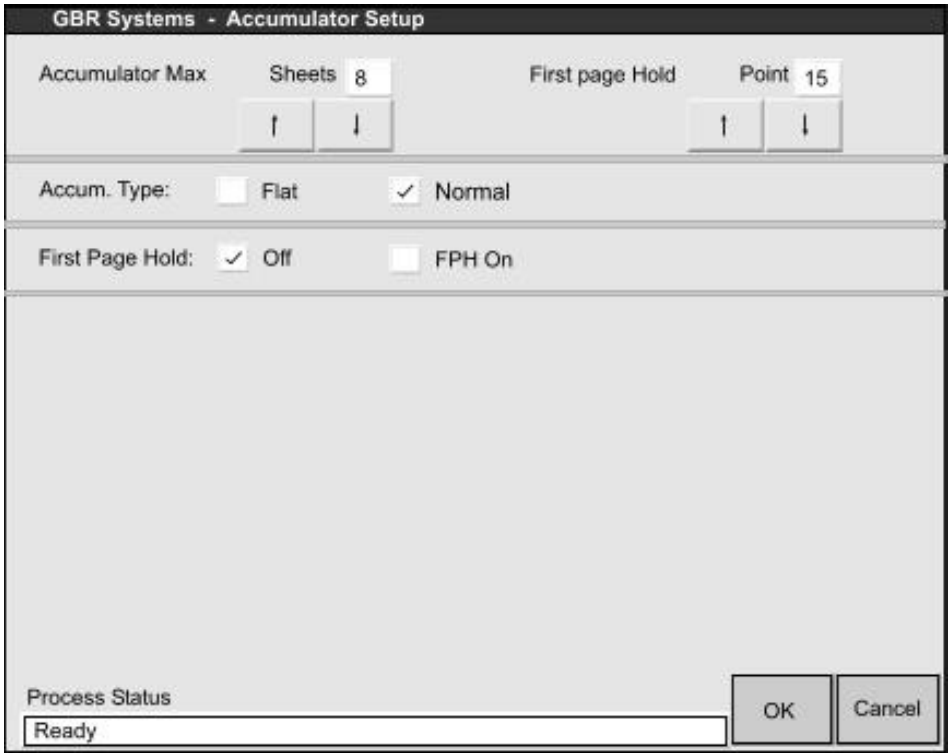
- Use when “Timed” is selected
- The clutch is deactivated at the lead edge of the document when this is set to “0”, increasing this setting extends the time the clutch remains on after the lead edge is detected by the feed sensor.

Feeder Type:

- Friction or Vacuum (default)

Used with read as a minimum clutch OFF time. (31264.002 >)

A.6c Accumulator Setup



Accumulator Max:

- Default = 8. Select up to 14 sheets maximum. The 420T will shut down if more than 14 sheets are fed into the Accumulator. This function prevents damage to the folder.
- Enter 15 when it is not desirable to have a package split into subsets. The 420T will still shut down on the 15th sheet. The operator must clear the Accumulator and manually process the package.

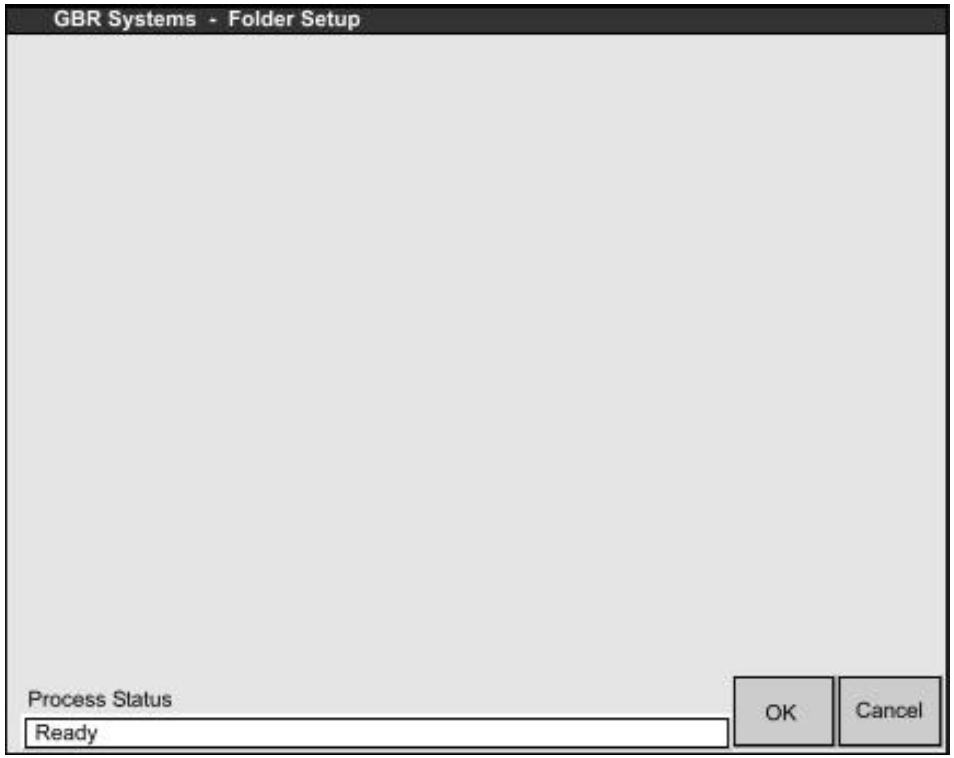
Accumulator Type:

- **Flat:** Select “Flat” when the system includes a Flat Pack Feeder (no Folder).
- **Normal:** Select “Normal” when the system includes a Folder/Accumulator.

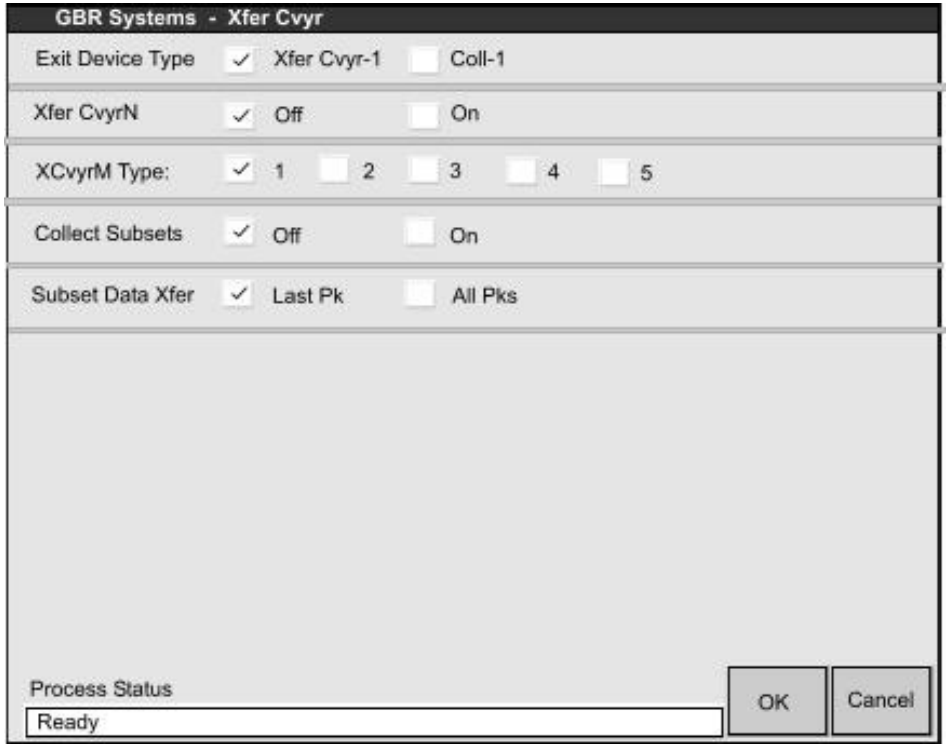
First Page Hold:

- **Point:** Relative number for the position where sheets stop on the Accumulator ramps. Starting point for the Vacuum Feeder is “26”, Friction Feeder is “8”.
- **Off:** First Page Hold feature is disabled.
- **FPH On:** If the Accumulator is equipped with First Page Hold, with “FPH On” selected the first document of a package is held on the Accumulator Ramps while the previous package is released to the Folder. This results in higher throughput as the time for the sheet being held at First Page Hold to reach the Accumulator is reduced. Adjust “Point” value to adjust stopping point of document on the Ramps.

A.6d Folder Setup (Future Option)



A.6e Xfer Cvyr (Transfer Conveyor) Setup



Exit Device Type:

- XferCvyr-1(default) or Coll-1

Xfer CvyrN:

- Off to select old style Transport Conveyor (no independent staging) or On to select independent staging devices. Set XCvyrN Type for staging locations.

XCvyrN Type:

- 1 selects all three stations (optional Folder Exit Station and both stations in 2 Stage Conveyor).
- 2 selects only the two stations in the Two Stage Conveyor. The optional Folder Exit Station will be bypassed.
- 3 selects only the final station of the Two Stage Conveyor
- 4 Bypass Bridge plus 2-Stage Conveyor
- 5 Folder Exit Station and Collector

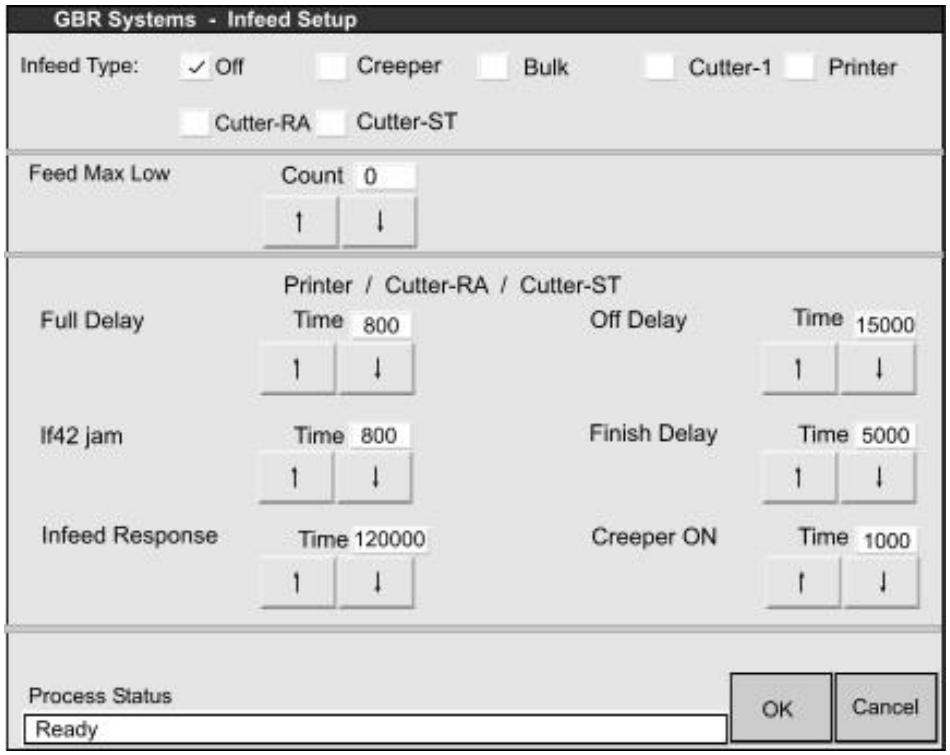
Collect Subsets:

- Off (default) or On. Off = no subsets.

Subset Data Xfer (Used with serial communication only)

- Last Pack – the data is transferred when set is complete
- All Pks – the data is transferred on each subset

A.6f Infeed Setup



Infeed Type:

Off:

- When no infeed device is used.

Creeper:

- Select when using the Vacuum Loader or the Friction Feeder Creeper Conveyor.

Bulk:

- 470-type bulk loader with on/off control by software monitoring the paper demand switch.

Cutter – 1:

- Guillotine type cutter/feeder

Printer:

- Select when inline with a printer. Settings in bottom section of this screen must also be selected.

Cutter-RA:

- A guillotine cutter set in right angle configuration feeding onto a right angle or turning device then feeding into the accumulator.

Cutter-ST:

- A cutter feeding directly into the accumulator.

Feed Max Low

- This count value is to prevent a low level of paper in the singulator section from occurring. This count value is the maximum sheets that can be fed once the Paper Demand Wand has dropped to the low position. If in read mode, this will be maximum sheets plus sheets needed to reach EOG.
- When the 420T is waiting for the singulator to be replenished, the Monitor Events will display “System: Singulator Paper Level Low - Add Paper”. Once sheets of paper from the printer are detected by the IF-42 Input Sensor or the Paper Demand Wand changes states, more paper will be fed. The Paper Demand Wand changing to a high state will reset this count to zero. The paper sensed by the IF-42 Input Sensor will incrementally decrease the count for each sheet of paper sensed to zero.
- Setting this to “0” turns this function OFF

Printer Fed Only:

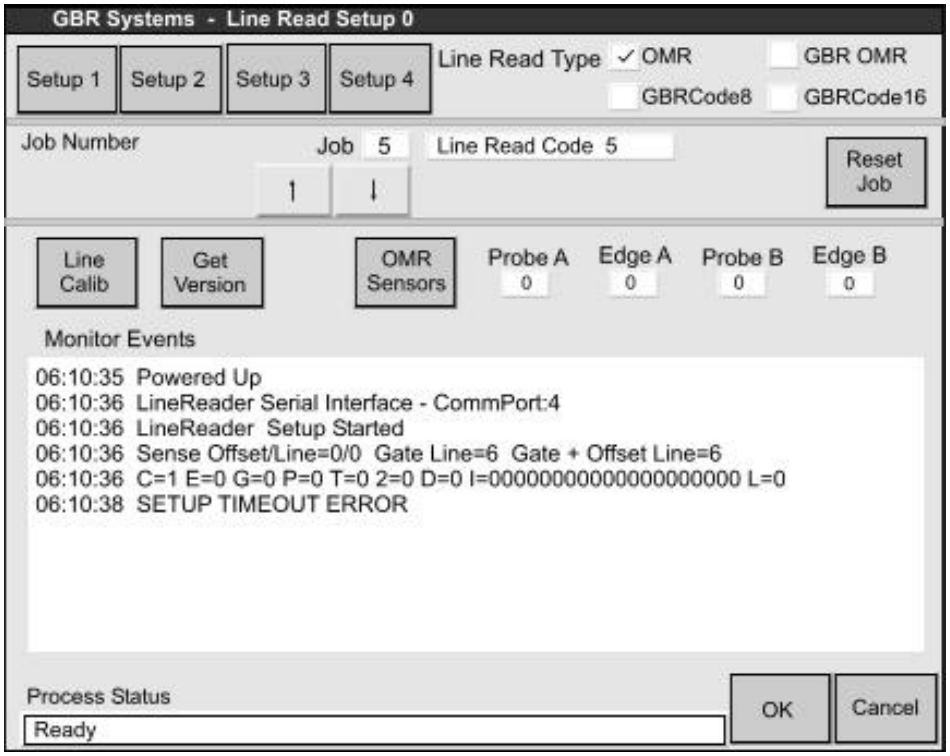
Full Delay – Time:

- This timer value is the debounce time for the Paper Demand Wand Signal input (R-1:20). Should this input change state, the system will wait 800ms before changing the state of the FULL S2 Signal output (W-1:18). This will allow the Paper Demand Wand to stabilize.

Off Delay – Time:

- This timer value is the period of time after the 420T has been stopped (by pressing the Start/Stop key) that the system waits for the printer to finish sending paper. The feeder has stopped but the 810, IF-42, and creeper keep running and collecting paper. (Upon the 420T stopping, a FULL signal (W-1:18) was sent to the printer).

A.6g Line Read Setup 0



Note:

- Refer to **Section E.1a & b** for an explanation of GBR Line Code Read.
- For a complete setup of Line Code Reading and setup screens 1 to 4 see **Section E.1c**

Line Read Type:

OMR**:**

- default, used with GBR Systems F40 Line Code Readers

GBR OMR**:**

- Not used on 420T V6

GBR Code 8:

- not used on 420T V6

GBR Code 16:

- not used on 420T V6

Job Number

- System will save all the parameters for up to 10 line code jobs. To program, select a job number, set all settings for the job in Line Read Setup 1, 2, and 3 screens. Pressing the OK button in each setup screen saves those parameters to the job number selected.

Reset Job

- Press this button to reset the job parameters to defaults for the job selected.

Line Calibration

Important Note: Used only for B+H Line Read, not GBR Line Read

- This function will calibrate the line code reader for proper location of marks for interpretation of code. Before pressing “Line Calib” make sure Reader Type “Line” in System Setup screen is selected. “Read” must be selected in Feeder Setup and all sensors must be properly adjusted. All Line Read Setup screens must be setup. Select Calibration “On” in Line Read Setup 2 before starting and “Off” when finished.

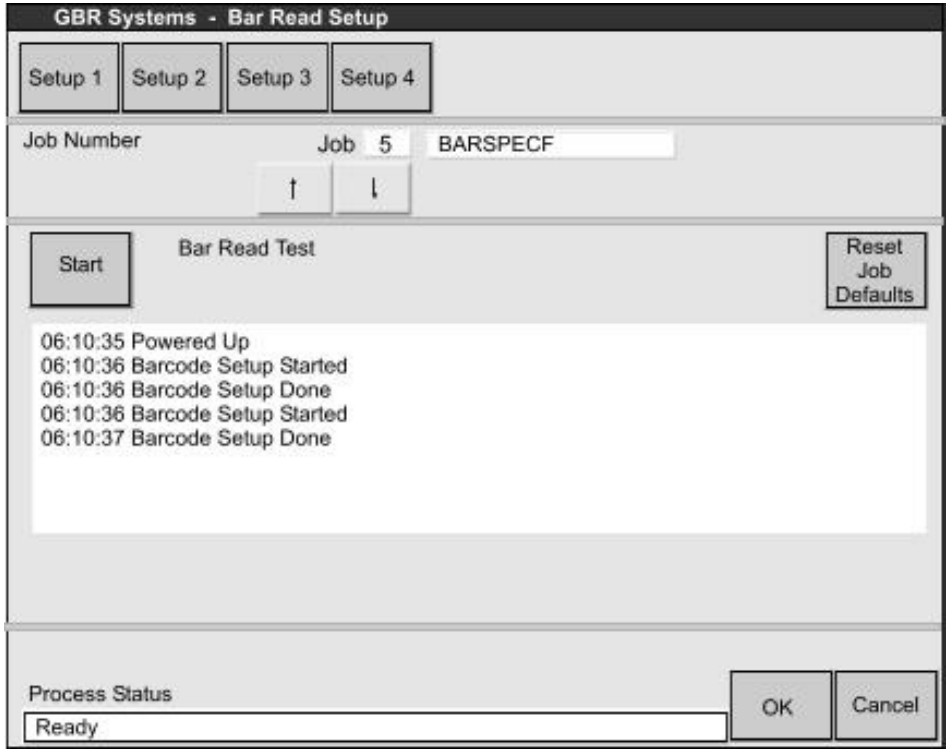
Get Version

- Enables viewing the version of line code reader software. Also verifies communication with read board if a version is returned.

OMR Sensors

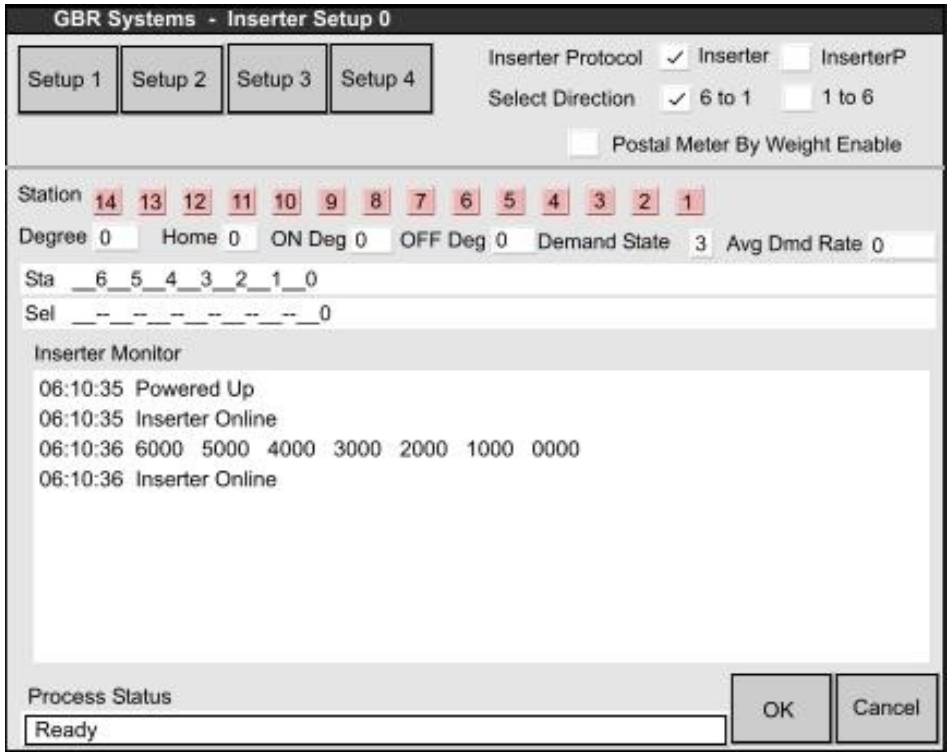
- Enables viewing the action of the sensor signals in the monitor window for diagnostic purposes.

A.6h Bar Read Setup



Note: Refer to **Section A.9d** for setup information.

A.6i Inserter Setup 0



Inserter Protocol

- Select either “Inserter” or “InserterP”

The following I/O points have dual usage depending on Protocol selected and interface PCB used (002D-08138 or 002D-07599).

Refer to I/O Rack #1 (Opto Rack “B” – Section B Electronics)

Inserter	**InserterP**
(U.S. Application)	(Typical European Application)
1-04 = Separation Sol #7	Inserter P Data Bit #1

1-05 = Separation Sol #1 Inserter P Data Bit #2

1-06 = Separation Sol #8 Inserter P Data Bit #3

1-07 = Shingle Conv Motor Inserter P Kicker

1-08 = Separation Sol #2 Inserter P Data Bit #4

1-09 = Separation Sol #3 Inserter P Data Bit #5

1-10 = Separation Sol #4 Inserter P Data Bit #6

1-11 = Separation Sol #5 Inserter P Data Bit #7

1-12 = Separation Sol #6 Inserter P Data Bit #8

1-13 = Separation Sol Env Inserter P Data Bit #9

1-14 = Ink Marker Sol Inserter P Data Bit #10

1-15 = Env Flap Sns Dis Inserter P Data Bit #11

1-16 = Emergency Stop Inserter P Data Bit #12

1-17 = Ins Station 1 Error Inserter P Error Bit

1-19 = Postal Meter Divert Inserter P Strobe Bit

1-22 = Cutter Jam Sensor Inserter P Kick Sensor

Selection Direction:

- Select either “6 to 1” or “1 to 6”

Postal Meter by Weight enable:

Station: 14…….1:

- This is a representation of the inserter stations and depending on active selection each will be green “indicating selected on” or red indicating deselected.

Degree:

- Encoder Updated as Inserter runs. This will show the degrees as the inserter encoder rotates.

Home:

- Encoder Updated as Inserter runs. This will show a “1” when the inserter encoder produces a home pulse.

ON Degrees:

- Degrees where demand goes on by either “Switch” or “Degree” demand.

OFF Degrees:

- Degrees where demand goes off by either “Switch” or “Degree” demand.

Demand State:

- Operates in Demand Type “Switch” or “Degree” (see Inserter Setup 1), 3=ON, 0=OFF

Average Demand Rate

- Diagnostic - averages Demand Rate over three cycles

Sta _6_5_4_3_2_1_0

- This is a diagnostic Inserter configuration view from the front of the Inserter reflecting the Inserter setup at the top of the screen e.g. “6 to 1” or “1 to 6”.

Sel_ _—_—_—_—_—_—_0:

- This represents the empty track sections aligned with the Inserter configuration. A pack dropped onto the Inserter track is represented by a ‘<‘. This ‘<‘ moves from right to left as the pack data is shifted by the 420T

Inserter Control Module. When the pack aligns with an Insert station that it is supposed to get an insert from the '<' changes to the number of the Inserter Station Select it is aligned with.

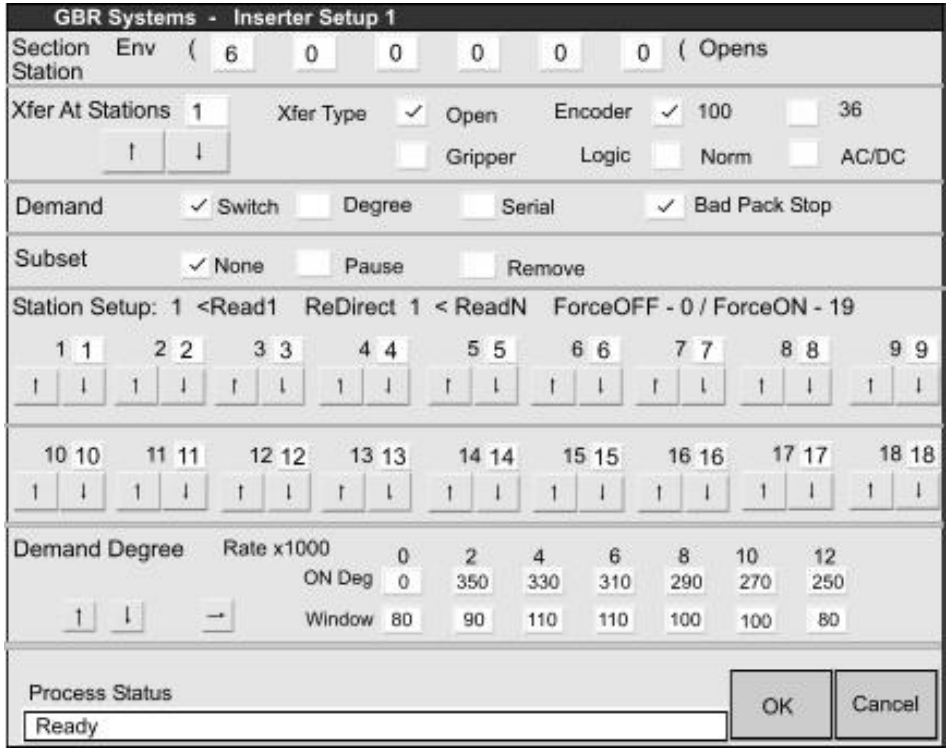
Example:

- "Sta_6_5_4_3_2_1_0"
- "Sel+_+_+_+3+_+_+<" (A work in process!!)

Inserter Monitor

- Displays events regarding inserter information.

A.6j Inserter Setup 1



Ins Stations:

- 4, **6**, 4+4, 6+4, 4+6, 4+4+4 – Choose Inserter configuration.

Xfer at Stations:

- Normally set to "Open (Open Feed)" for when the 420T places the folded documents directly on the inserter track. When using open feed, the selected number represents the number of stations from where the package was placed until it reaches the first insert station

Set **Xfer At Stations** = 0 for **Gripper**, "1" - "9" for "**Open**" (Open Feed).

Xfer Type:

- Select "Open" for open feed station.
- Select "Gripper" (Inserter takes the folded document from the 420T in an inserter gripper station)

Encoder Type (Inserter Encoder):

- Select 100 Tick (default) or 36 Tick

Logic :

- 775 – 420T control of 775 Inserter functions, station Select, Envelope Disable, Envelope Flap Detect Disable, InkMark, Divert, Postal Meters.
- AC/DC – 420T control of non-775 Inserter functions, station Select, Envelope Disable, Envelope Flap Detect Disable, InkMark, Divert, Postal Meters.

Demand Type:

Switch:

- Select when demand signal is provided by a magnetic switch

Degree:

- Select when demand signal is provided by an encoder

Serial:

- Select when demand signal is provided serially through an RS232 interface by an inserter.

Bad Pack Stop:

- This box is defaulted “on” or “checked.” The machine will stop on a bad pack and enable the bad pack indicator light on the inserter. If unchecked or “off”, the machine will not stop on a bad pack.

Subset:

- Select the “Subset By Count” function in either Barcode or Linecode by entering a subset page count then selecting “Remove” in the Inserter Setup, Subset function.

None:

- Subset pause is not used

Pause:

- Inserter will not advance until the transfer conveyor feeds a second pack into an open feed station

Remove:

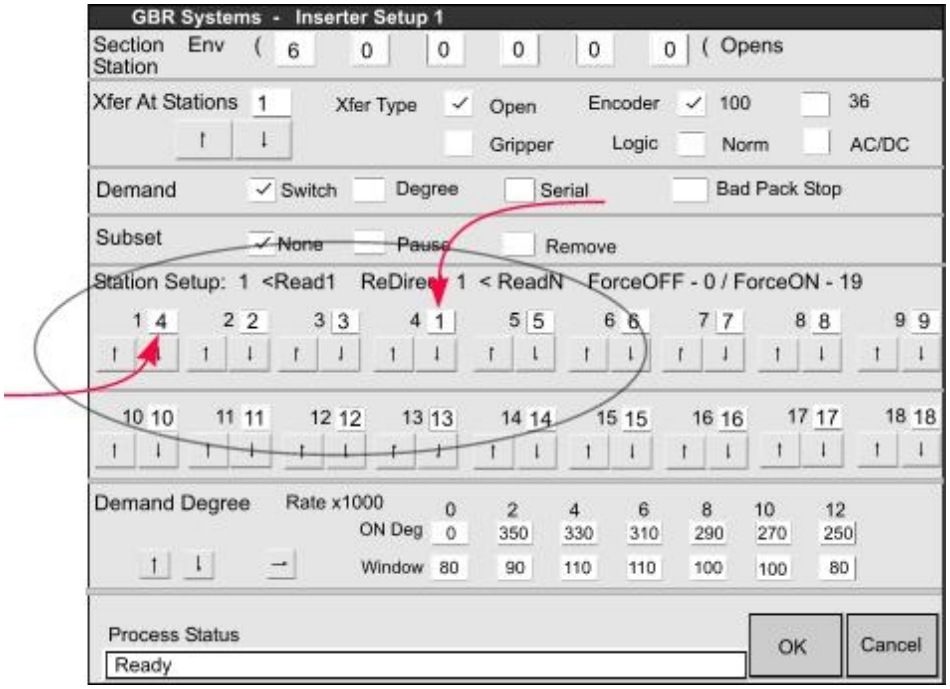
- Inserter will not advance and permits the operator to remove the packs deposited in the open feed station on the inserter.

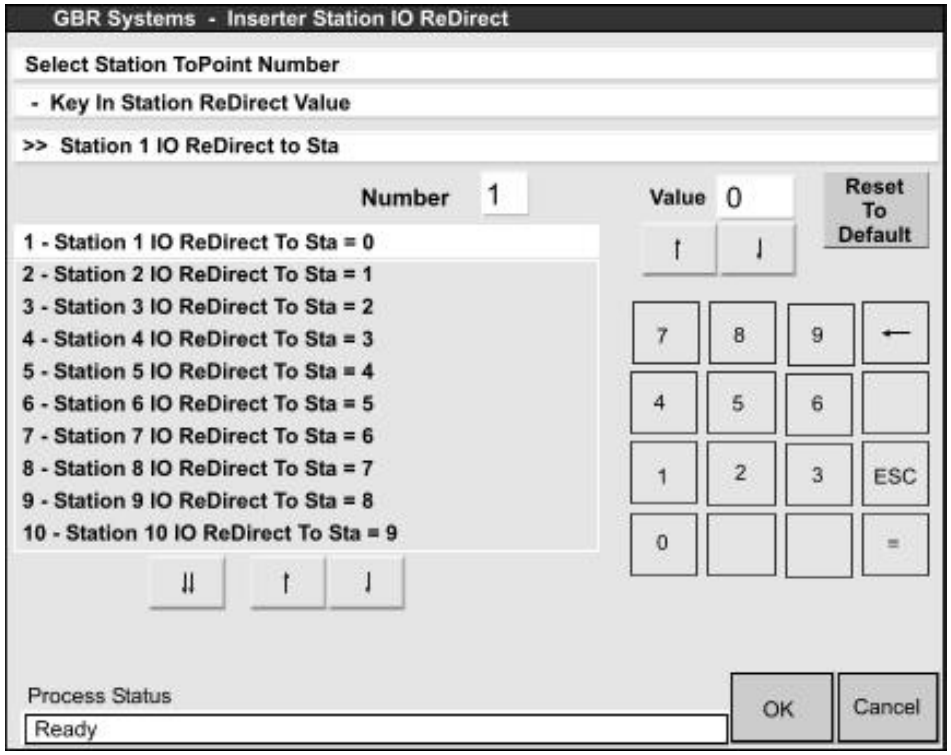
Station Setup:

- **Note:** Insert Station positions are referenced from the station at which the documents are inserted into the envelope (“Insert Sta: 0"). Insert Station 1 would be the station upstream from Insert Station 0. Insert Station -1 is the Insert Station downstream from Insert Station 0.
- When set to “0” the station is always off.

When set to 1 more than the total number of stations the station will always be on.

- If a station is down, one of the other stations can be programmed to take its place.
- Station Setup 1-9
- Station Setup 10-18




GBR Systems - Inserter Station IO ReDirect
Select Station ToPoint Number
- Key In Station ReDirect Value
>> Station 1 IO ReDirect to Sta
Number 1
Value 0
Reset To Default
1 - Station 1 IO ReDirect To Sta = 0
2 - Station 2 IO ReDirect To Sta = 1
3 - Station 3 IO ReDirect To Sta = 2
4 - Station 4 IO ReDirect To Sta = 3
5 - Station 5 IO ReDirect To Sta = 4
6 - Station 6 IO ReDirect To Sta = 5
7 - Station 7 IO ReDirect To Sta = 6
8 - Station 8 IO ReDirect To Sta = 7
9 - Station 9 IO ReDirect To Sta = 8
10 - Station 10 IO ReDirect To Sta = 9
7 8 9
4 5 6
1 2 3 ESC
0 =
Process Status
Ready
OK
Cancel

Example of "Inserter Station Swapping" set-up on the GBR

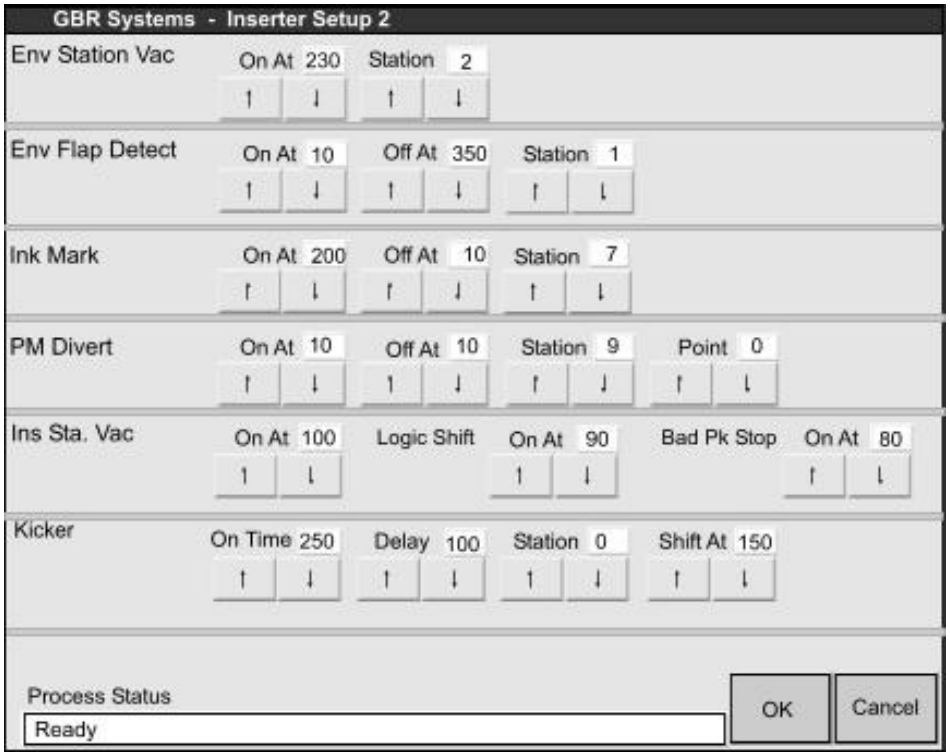
- Example: If you want a decode for insert feeder 4 to pull from insert feeder 1 set 1 = 4
- If you want a decode for insert feeder 1 to pull from insert feeder 4 set 4 = 1

Demand Degree:

- This is similar to setting dwell time on an engine. As the speed of the machine is increased, home may be programmed at a position prior to 0 degrees allowing for lag time in components at higher speeds.
- Degrees may be set for 0 thru 12,000 cycles per hour in 2,000 increments.
- Note: Inserter degrees are reset to zero at the occurrence of a home pulse for either inserter encoder.

Check to see if the example at the left is needed now that the above screen is present.

A.6k Inserter Setup 2



Envelope Station Vacuum:

- Normally enabled at “230.” This is the position of the encoder (in degrees) at which vacuum is applied to the envelope hopper. Station is normally set at 2.

Envelope Flap Detect:

- Normally set **On at**: 010, **Off at**: 350, and **Station** at 1 (this is the location of the flap detect).

Ink Mark:

- An optional device that places an ink mark in varying locations to sort zip codes visually. **ON At:** (default = 200) **Off At** (default = 10) is the number of chain movements AFTER envelope insertion. Ink Marking is normally located at **Station** 7.

PM Divert – (Postal Meter Divert):

- (see “Inserter Setup 3” on following page)
- This is normally set On At 10, Off At 10, Station 9, Point 9.

Insert Station Vacuum:

- **On** is normally enabled at “100.” This is the position of the encoder (in degrees) at which vacuum is applied to the insert station.
- **Logical Shift** is normally set to “On At: 90.” This is used to carry the data with the physical document.
- **Bad Pack Stop** is normally set to “On At: 80.”

Kicker:

- The Kicker routine is initiated by the extraction of an Ink Mark from read data.

On Time:

- Period of time in milliseconds that the Kicker will be ON or energized - Default = 250, “Station” must be set to greater than “0.”

Delay:

- Period of time in milliseconds to delay the Kickers ON time from occurring. Range (0 990). . Default = 100

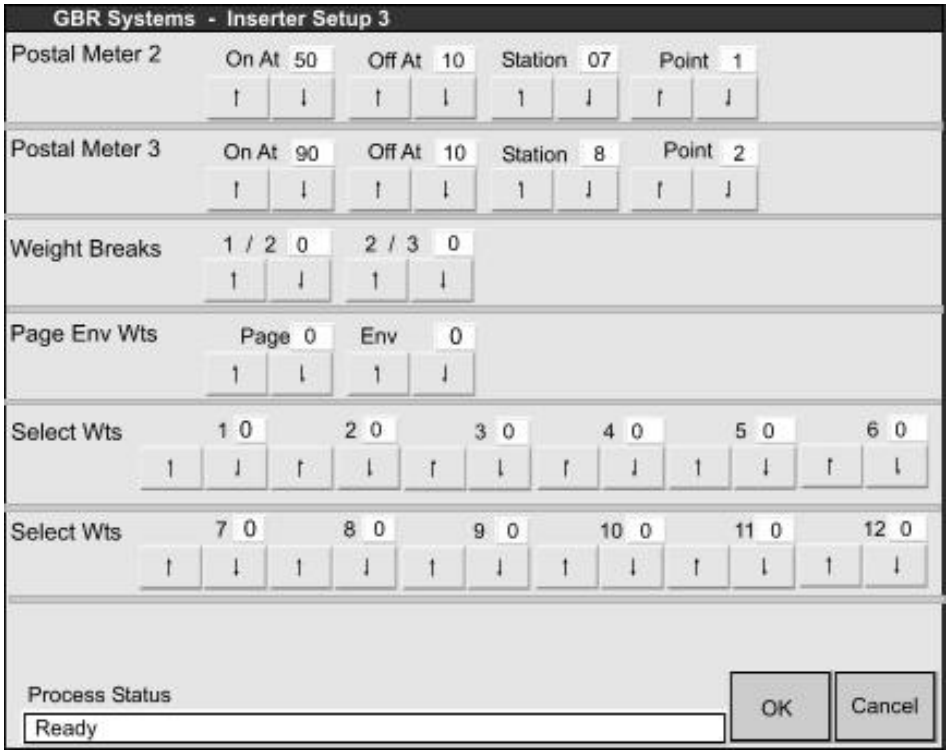
Station:

- Location on the deck of the inserter the **Kicker** will operate from when selected. Range (0 25). “0” disables the kicker routine. Station is referenced from the envelope insertion station in “Inserter” and from the first station in “InserterP” outside of the transfer conveyor.

Shift At:

- Logic shift for data; adjustable to enable data to be shifted relative to inserter Home position thereby ensuring the “Kick” comes at precisely the correct moment. Default = 150. **Range** (0 to 990).

A.6l Inserter Setup 3



PM Divert, Postal Meter 2, and Postal Meter 3:

- **NOTE ON POSTAL METER WEIGHING:** The 420T can accommodate up to three postal meters (PM Divert 2 and 3 are located in Inserter Setup 3). Based on the values entered in “Weight Breaks”, “Page Env Wts”, “Ins 1-6 Wts”, and “Ins 7-12 Wts” the document will be stamped by the appropriate postal meter. The dollar value must be manually entered in the postal meter.
- The value you enter in the Postal Meter Weights can be any unit of measure as long as it is consistent. If one weight break is set to reflect ounces, all other settings must reflect ounces, including the inserts and the postal meter itself. Likewise, if one is set to reflect grams, they must all be set to reflect grams. The numbers entered are relevant only to each other.

Postal Meter 1 (PM Divert in Inserter Setup 2):

- Is normally set to **On At** 10. This will enable the postal meter at the correct time. This value may need to be adjusted if the postal meter doesn’t place the postage in the correct place. **Postal Meter 2** (found in Inserter Setup 3) should then be set to 40 higher than the new Postal Meter 1 value and **Postal Meter 3** should be 40 higher than Postal Meter 2.

Off At:

- Should be set to “10" for all three.

Station: 0:

- Is set to the value of the last chain section of the inserter after the envelope stuffer and the turnover (04, 05, 06, 07, etc.). This is normally set to “07" on a six station inserter.

Point :xx:

- Selects the postal meter output line to the 420T. This is normally set to “0" for PM Divert, ”1" for Postal Meter 2, and “2” for Postal Meter 3.

Weight Breaks:

- The 420T will total the weights of all documents, inserts, and the envelope and then send it to the correct postal meter. Because you are setting the weight breaks as well as the envelope, page, and insert weights, it is important to keep the unit of weight (i.e., oz) consistent.
- 1 / 2 Enter the Weight Break of Postal Meter 1 to Postal Meter 2.
- 2 / 3 Enter the Weight Break of Postal Meter 2 to Postal Meter 3.

Page Env Wts:

Page:

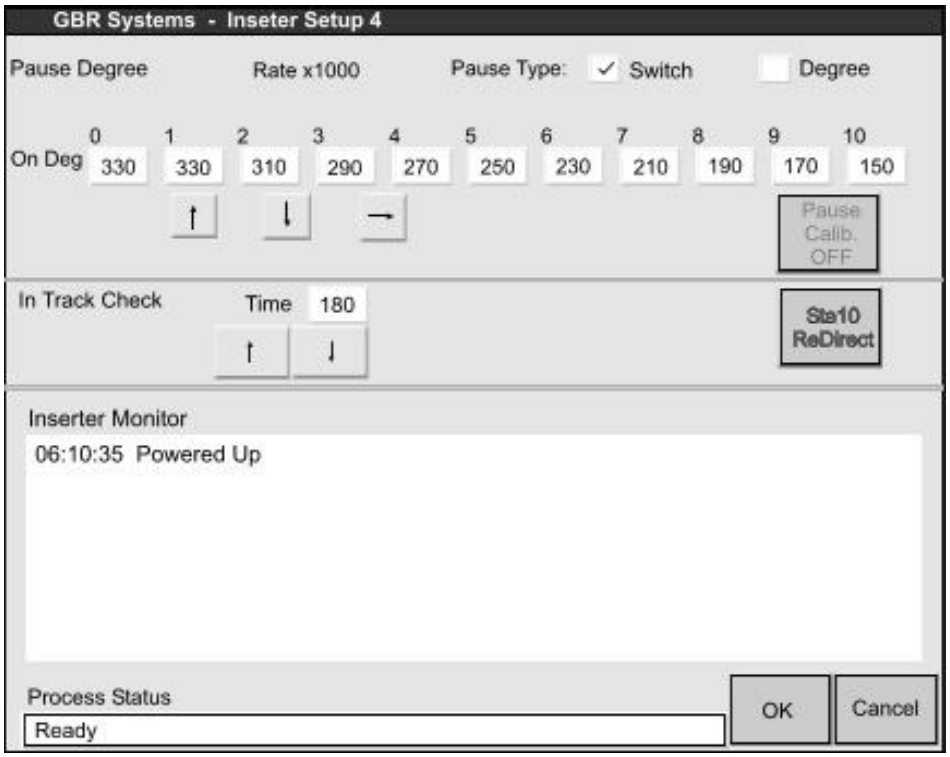
- Enter the weight of the individual page; the 420T will sum the weight of all pages automatically.

Env:

- Enter the weight of an individual envelope.
- Ins 1-6 Wts and Ins 7-12 Wts

Enter the weight of each insert in stations 1-6 and stations 7-12

A.6m Inserter Setup 4



Pause Degree:

Pause Type: Switch or Degree

- The defaults of **On Degree** are:

0	(0 to 999)	On Deg	330
1	(1000 to 1999)	On Deg	330
2	(2000 to 2999)	On Deg	310
3	(3000 to 3999)	On Deg	290
4	(4000 to 4999)	On Deg	270
5	(5000 to 5999)	On Deg	250
6	(6000 to 6999)	On Deg	230
7	(7000 to 7999)	On Deg	210
8	(8000 to 8999)	On Deg	190
9	(9000 to 9999)	On Deg	170
10	(10000+)	On Deg	150

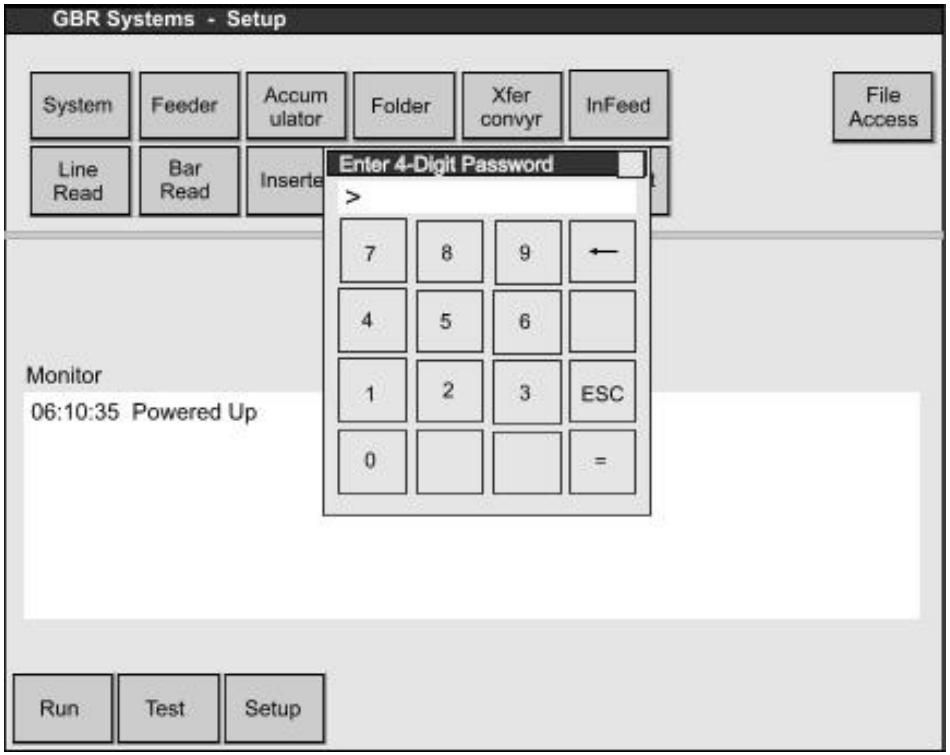
In Track Check – Time: 180

- This refers to the InserterStation1/InserterOpenFeed/InserterIntrack sensor. At 180 degrees(or where you set this value in InserterSetup4) the pack is sensed in the track. If the pack is there it moves ahead and is processed for selects and envelopes. If it is not there the selects and envelopes are erased.
- Refer to **Section D.4** for an example of a Typical Postal Metering Setup Preset.

Inserter Monitor:

- Displays inserter event activity.

A.6n Engineering Values (Password Protected)



The above screen permits adjustment of the Engineering Values of program control and machine parameters. Using this screen a vast number of parameters can be changed to suit the specific needs of the machine and job setup.

Enter by selecting “Engin Values” from the Setup Screen and enter “4444” to jump to the screen on the right. Once inside this screen changes to program defaults and modification to machine timing settings can be made. Please record any previous settings before making any changes. In this way it will be possible to return should the new change create a problem.

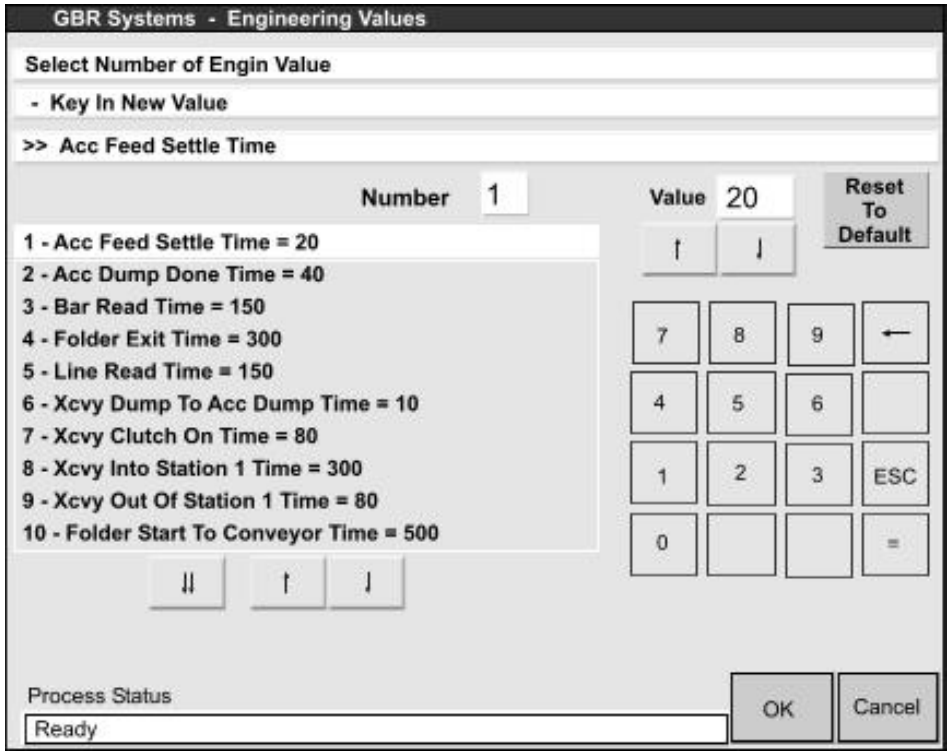
Number:

Value:

- For settings, refer to Section A.8 for the default Engineering Values List.

Reset to Default:

- Press this button to reset only the current Engineering Value displayed to its default value. This value is changed on the display only. Pressing the


GBR Systems - Engineering Values
Select Number of Engin Value
- Key In New Value
>> Acc Feed Settle Time
Number 1
Value 20
Reset To Default
1 - Acc Feed Settle Time = 20
2 - Acc Dump Done Time = 40
3 - Bar Read Time = 150
4 - Folder Exit Time = 300
5 - Line Read Time = 150
6 - Xcvy Dump To Acc Dump Time = 10
7 - Xcvy Clutch On Time = 80
8 - Xcvy Into Station 1 Time = 300
9 - Xcvy Out Of Station 1 Time = 80
10 - Folder Start To Conveyor Time = 500
7 8 9 ←
4 5 6
1 2 3 ESC
0 =
Process Status
Ready
OK
Cancel

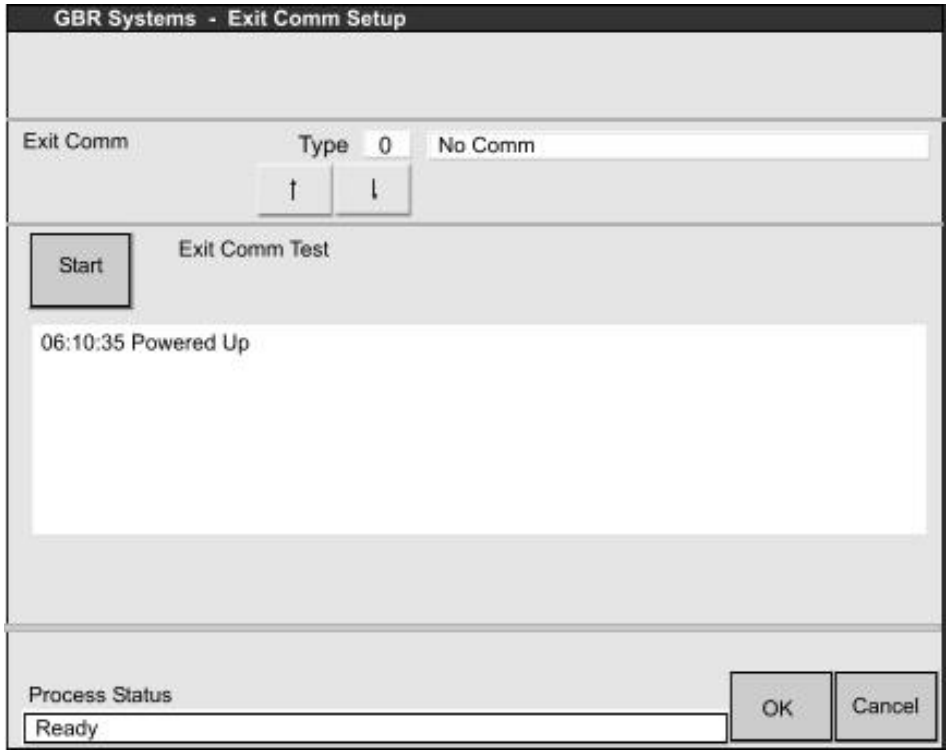
“OK” button saves the default value, “Cancel” exits and returns the Engineering Value to the current value.

The screen displays 10 Engineering Values at one time.

- The highlighted Engineering Value Number can be moved up or down one at a time (single up or down arrows). or 10 at a time (double down arrows).
- The Engineering Value can be modified up or down one increment at a Time (single up or down arrows) or a value can be directly keyed in with the keypad.

- Press Ok on the keypad to accept input and move to the next Engineering Value Number.

A.6o Exit Comm Setup



Type:

- 0 No Comm
- 1 Spec D1
- 2 Spec D2
- 3 Spec P1
- 4 Spec P2
- 5 General
- 6 Tampa 1 (default)
- 7 Zaandam 1
- 8 Friedberg 1
- 9 General 2
- 10 Zaandam 2
- 11 Crestwood 1
- 12 General 3
- 13 Spec L1
- 14 Zaandam 3
- 15 Crestwood 2
- 16 Zandam 3 Host Simulator

Start Button

– Xmits test data in type selected. Displays response terminated by a CR, LF. Press again to stop.

A.7 GBR LINE CODE READ SYSTEMS OPTION

A.7a Introduction

The Line Code Recognition System is capable of decoding line code marks that are on 1/8" or 1/6" spacing. There can be as many as 25 mark locations in a bank with a possibility of two banks per each channel of Line Code marks.

A Single Line Code Recognition card supports input information from two probes. The second probe is a optional feature. The system is limited to having only one of the two probes active at any one time. If more than one channel of Line Code marks is required to be recognized on a single document, each additional channel requires another Line Code Recognition system.

The GBR Line Code reader uses an analog signal to read code as it passes by the fiber optic sensor. The reader board is 'intelligent' because the variables used to generate this analog signal are not hardwired into memory, but can be modified through software. The reader can be adjusted to account for variables such as:

Paper color changing from job to job

- Code not being printed to specification resulting in more reliable reading from the 420T.

Reader Board Values that can be Adjusted Through The 420T Touchscreen

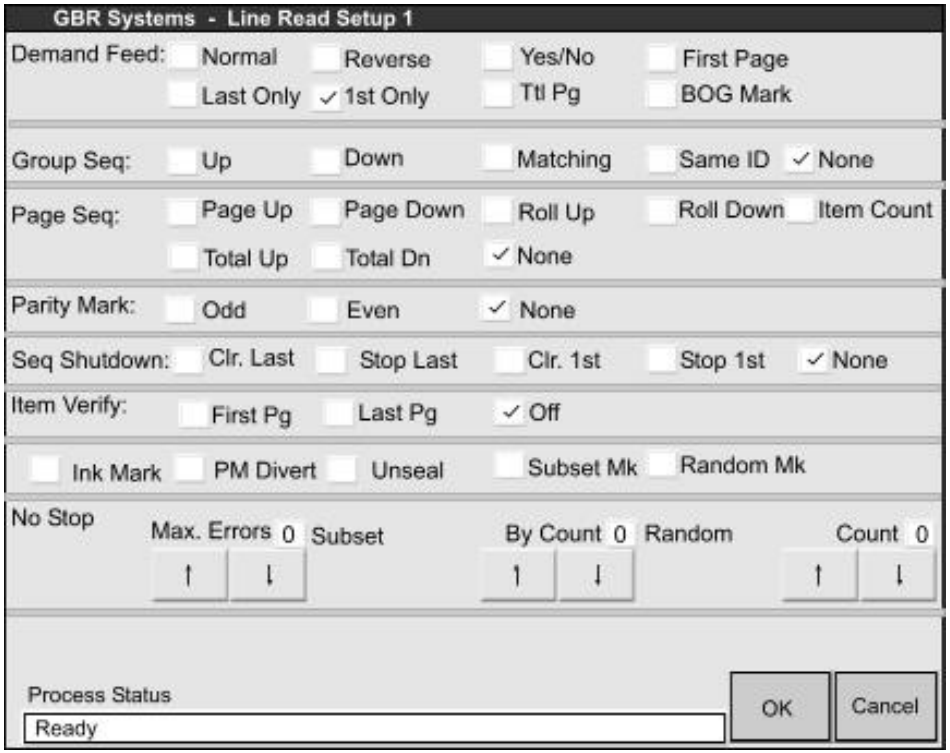
Refer to "Line Read Setup 4".

- ·**GAIN -** controls the amplitude of the 0-5 volt analog signal.
- ·**OFFSET #1 -** controls the initial DC voltage added to the analog signal to catch the lead edge of the page.
- ·**OFFSET #2 -** controls the DC voltage added to the analog signal when reading the code.
- ·**LAMP -** controls the brightness of the reader probe.
- ·**TRIP POINT #1 -** controls the voltage level at which an interrupt will be generated in a low-to-high voltage transition.
- ·**TRIP POINT #2 -** controls the voltage level at which an interrupt will be generated in a high-to-low voltage transition.

For F30 set to BB+H read

A.7b 420T Line Read Setup Screens (GBR & BB+H)

Line Read Setup 1


GBR Systems - Line Read Setup 1
Demand Feed: Normal Reverse Yes/No First Page
Last Only 1st Only Ttl Pg BOG Mark
Group Seq: Up Down Matching Same ID None
Page Seq: Page Up Page Down Roll Up Roll Down Item Count
Total Up Total Dn None
Parity Mark: Odd Even None
Seq Shutdown: Clr. Last Stop Last Clr. 1st Stop 1st None
Item Verify: First Pg Last Pg Off
Ink Mark PM Divert Unseal Subset Mk Random Mk
No Stop
Max. Errors 0 Subset
By Count 0 Random
Count 0
Process Status
Ready
OK
Cancel

("Setup" > "Line Read" > "Setup 1")

DEMAND FEED:

NORMAL - The machine will end the set on the presence of an End Of Group mark. This means the only page in a set that has the mark is the last one.

REVERSE - The machine will end the set on the absence of the End Of Group mark. This means the all pages in the set will have the mark except the last one.

YES/NO - Used where all pages have one mark. Each page will have an End of Group or a NOT End Of Group mark.

FIRST PAGE – :

Used with Page Seq Down

EOG on first page of sel.

Page Seq Dn to 4, last page and End Of Group generated.

LAST ONLY - When this option is selected, the system looks not both and not neither.

1ST ONLY – SetIt enable verify extact data.

- Uses IT enable verify comt to connt down to 1, End of Grp

TTL PG – (Total Page):

- Set It enable verify
- Set pg seq total up
- EOG at pg Seq = total
- Set pg seq total dn
- EOG at

Press "Cancel" to void any changes made to this screen or "Ok" to set the changes and return to the "Line Read Setup 0" screen.

GROUP SEQUENCE:

- **UP** - Choose if the group is counted UPward. (1, 2, 3, 4). Sets must be in order.
- **DOWN** - Choose if the group is counted DOWNward. (4, 3, 2, 1). Sets must be in order.
- **MATCHING** - will match marks within a set. All marks in the set must be the same. Sets may be in random order.
- **SAME ID -** :
- **NONE** - No group sequence.

The purpose of the Group Set mark is to ensure pages from two different packages do not get processed in a single package. Group Set marks must be present when using GROUP SEQUENCING.

PAGE SEQUENCE:

- **PAGE UP** - Choose if the page is counted UP (1, 2, 3, 4).
- **PAGE DOWN** - Choose if the page is counted DOWN (4, 3, 2, 1).
- **ROLL UP** - Cycle counts up sequentially to a selectable value set in “Line Read Setup 3 (Group Seq and Page Seq - Min and Max)
- **ROLL DOWN** - Cycle counts down sequentially from a selectable value set in “Line Read Setup 3 (Group Seq and Page Seq - Min and Max)
- **ITEM COUNT** - Choose when the first sheet in a package indicates the total number of sheets in that package.
- **Total UP -**
- Total Down -

Parity Mark: - :

- Odd -
- Even -
- NONE- No page sequence.

There is a limit of three Page-Sequence marks. Their purpose is to give an individual identity to each page within the package. The maximum number of pages in a package is seven. Page-Sequence marks must be present when using PAGE SEQUENCING.

Seq Shutdown:

- Clr Last -
- Stop Last -
- Clr First -
- Stop First -
- None -

Item Verify – :

- First Pg –
- Last Pg –
- Off –

Ink Mark:

PM Divert:

Unseal:

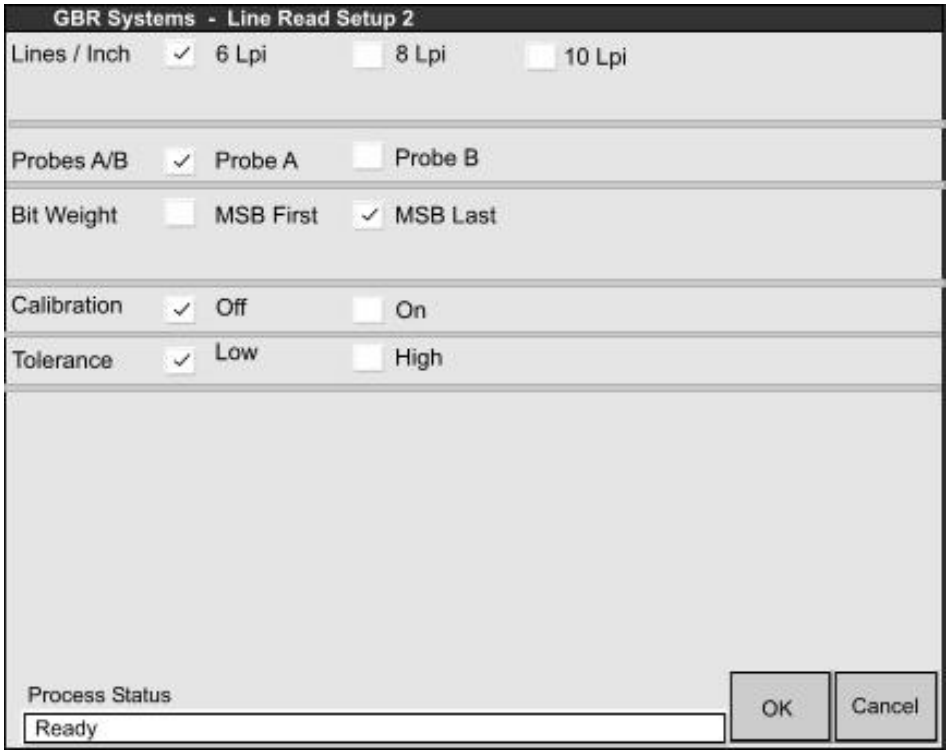
Subset Mark

The limit of sheets into the accumulator is seven. Subset is a special line in the code that is used to indicate whether a set is more than seven pages. When the package is more than seven pages the machine will use the subset line to break the total page count into the amount of packages necessary to complete the total count. This prevents possible damage to the folder from packages greater than seven pages. The set and subset will go out in different envelopes.

Random Mark :

Press “OK”

Line Read Setup 2



("Setup" > "Line Read" > "Setup 2")

Lines / Inch:

The code marks can be at 1/6, 1/8, or 1/10 inch spacing. This is 6, 8, or 10 lines per inch. There can be as many as 25 mark locations in a bank.

EXAMPLE

GRV

EOG

GS1

GS2

GS4

GS8

PS1

PS2

PS4

PAR

NOTE: Presence of a bar is binary 1, and the absence of a bar is binary 0.

The GRV mark must be located in the first position. The EOG, PAR, GSn, and PSn marks may be shifted in the bank of marks. The GS grouping and the PS grouping must be located as sets, however.

Probes A/B:

- Select the reading probe to be used.

Bit Weight:

Page and Group marks can be arranged as Most Significant Bit First (MSB) or Most Significant Bit Last.

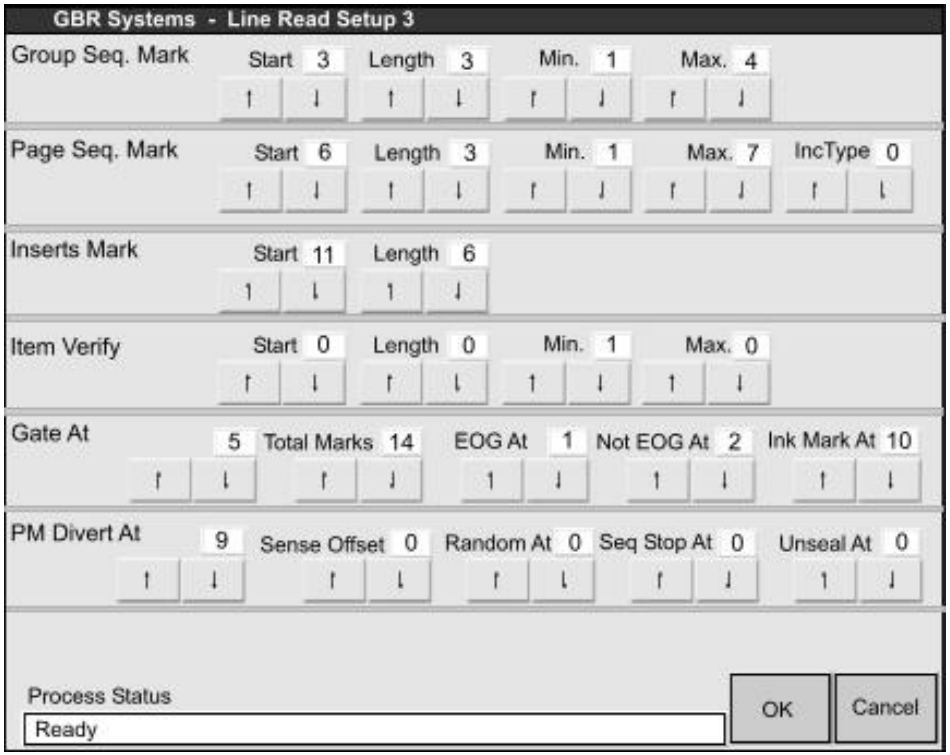
MSB First is the first bit encountered when reading.

MSB Last is the last bit encountered when reading

Example MSB Last	Example MSB First
GRV	GRV
EOG	EOG
GS1	GS8
GS2	GS4

GS4	GS2
GS8	GS1
PS1	PS4
PS2	PS2
PS4	PS1
PAR	PAR

Line Read Setup 3



(“Setup” > “Line Read” > “Setup 3”)

To Begin:

The reader must be told at what point in a code field it will see page, group, parity, and inserts. Depending on the code format this indicates when the field begins, how many lines it consists of, and the maximum value of the field.

This is crucial to proper reading, and the operator should have a master code template that shows the location and value of each line in a code field. If certain fields are omitted, enter an arbitrary number not related to the specific code in that field.

Example: Where the code is page field first, and there are three lines for the page field the correct set-up would be Begin: 01 Length: 03 Max value: 7

Group Seq. Mark:

- Purpose - Identify each page as being a part of an individual package. Depending on how the operator wishes to use the Group Seq. The sequential incrementing or decrementing of the number ensures the document’s printed sequence is maintained.
- Usage - It is interpreted as a binary number. This number must be constant for all the pages within a package. This number should sequentially increment from package to package (when sequentially counting sheets upward). This number sequentially counts from 0 to 15.

Page Seq. Mark:

- Purpose - Identify each individual page within a package. The sequential incrementing of the number ensures the documents are assembled in the proper order.
- Usage - It is interpreted as a binary number. This number sequentially counts from one to as high as seven.

Inserts Mark:

Gate At:

- Location - First OMR mark within a code bank (always present)
- Purpose - Indicates the start of an OMR code
- Usage - synchronizes the OMR system to interpret the remaining OMR marks in the code.

Total Marks:

- This refers to the total number of marks in the code block. It is possible to have more marks listed than what is required or actually in the code block, but you must have all that are required listed as the total.

EOG At Mark:

- Purpose - Controls the size of dynamic packages by indicating the end of a group.
- Usage - A solid bar is placed in this location on the page with the largest page ID number. All other pages within a group should have no mark in this area.

Not EOG At Mark:

Ink Mark At:

PM Divt Mark: (Postal Meter Divert Mark)

Parity Mark (not available at this time)

- Purpose - Adds parity error checking to the code
- Usage - This location is used to maintain an even number of solid marks within a code.

Note: The fields that are marked Optional can be eliminated by operator configuration of the machine. However, when a data field is eliminated package security and integrity suffers.

Sense Offset Mark:

Random At Mark:

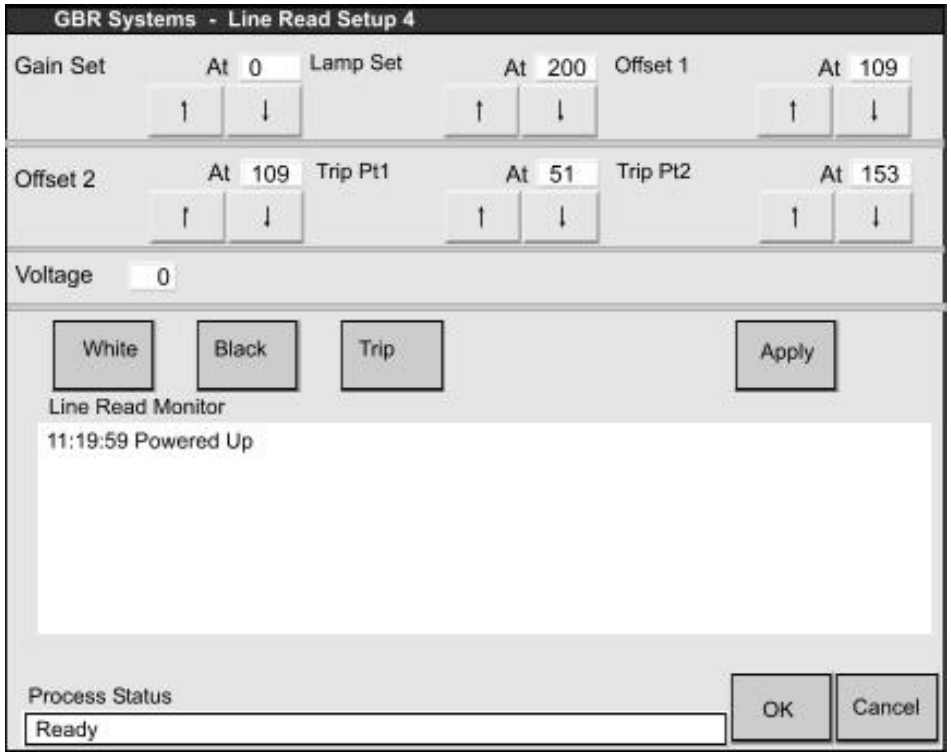
Seq Stop At Mark:

Unseal At Mark:

Press “OK”

Line Read Setup 4 (TJ Read Sys - Obsolete)

(“Setup” > “Line Read” > “Setup 4”)



The TJ Read System has been discontinued and is no longer used.

The above screen is printed here for informational purposes only.

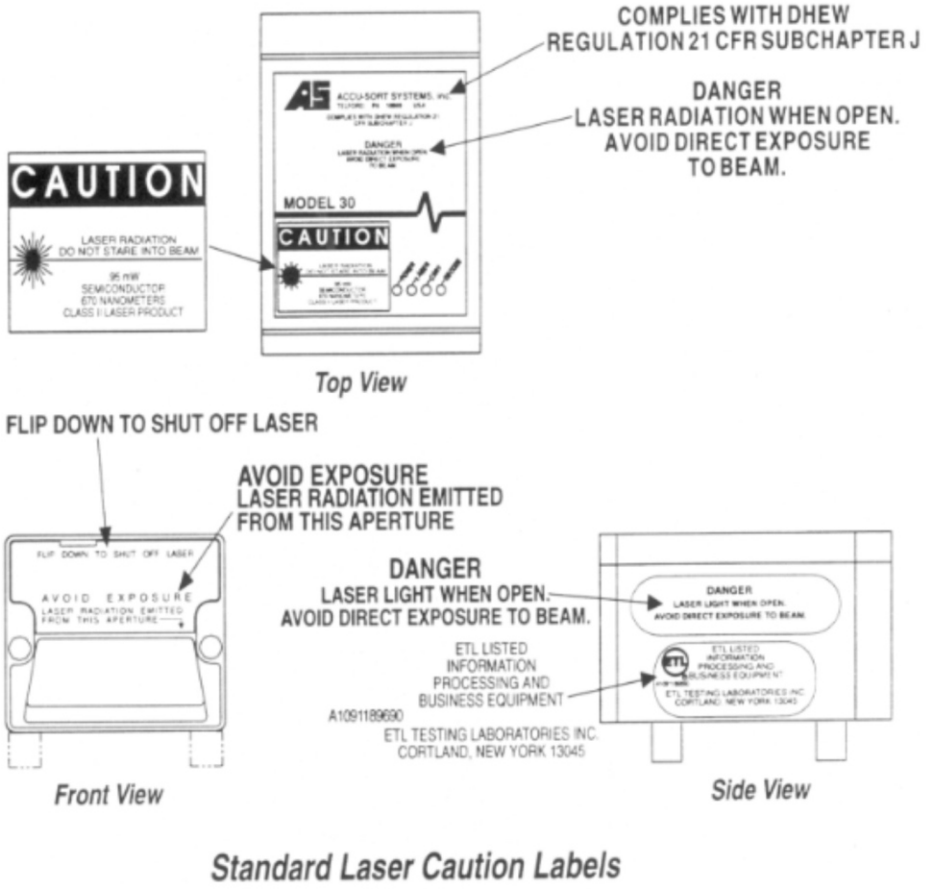
A.8 LASER BAR CODE READ OPTION

A.8a Laser Safety

To prevent possible exposure to laser light that may exceed the CDRH's Accessible Emission Limit for a Class II laser, Your Model 30 has a "Scanning Safeguard" feature, a Laser Shutoff Flip Panel. It shuts off the laser power if the mirror wheel fails to rotate, which ensures that a stationary laser beam cannot exit the scan head. **This is a required feature, and it should not be tampered with. Use only in case of an emergency.**

The radiation level from the laser does not constitute a health hazard. Exercise care to avoid any unnecessary, direct exposure to the eyes. Avoid staring at the light source, since prolonged exposure could result in eye damage. Avoid deliberate eye exposure to the beam. Inadvertent contact, however, is not a cause for alarm.

Any service should be performed so as not to violate compliance with the Code of Federal Regulations, Title 21. Part 1040, Section 10 (21 CFR 1040.10), as administered by the Center for Devices and Radiological Health, a service of the Food and Drug Administration under the Department of Health and Human Services. Do not attempt to defeat any safety provisions.



Standard Laser Caution Labels

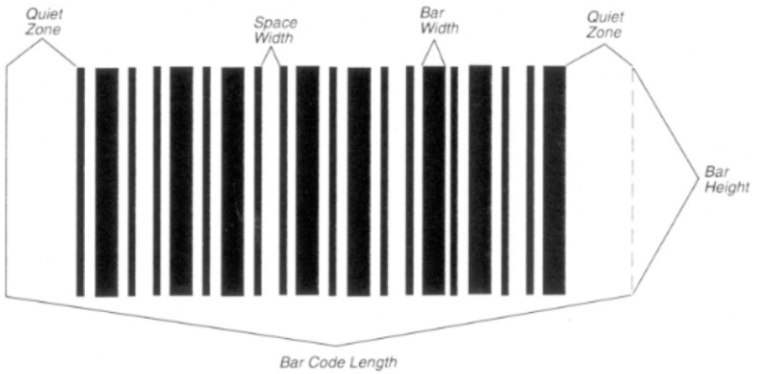
Please Observe These Warning Labels

A.8b Bar Code Basics

A bar code is a group of rectangular bars and spaces arranged in a preset pattern. The pattern is organized to represent elements of data referred to as characters. The standard industry codes can represent several alphanumeric characters.

There are many different types of bar codes. Each type uses its own symbology, which defines how the bars and spaces represent the letters and numbers.

The figure below shows each part of a bar code. The labels for each part remain the same even if the position, orientation, or type of bar code



Bar Code Example

changes.

The GBR 420T with the Accu-Sort Model 30 uses the 3 of 9 code or Code 39 - fixed or variable length. This was the first code developed that used both numbers and upper-case letters. It is the most recognized and widely used for non-retail applications. Each character is represented by a stand-alone group of 5 bars and 4 spaces. The basic code set includes 0-9, A-Z, * which is used for the start and stop characters, and six other symbols - . $ / + and % for a total of 43 characters. Because each of the characters are discrete and self-checking, Code 39 provides a high level of data security. The Model 30 automatically checks all data for this symbology.

The bar code width must not be printed smaller than 0.010" (.025 mm). Recommended width is 0.015", code height is 3/8 inch. Minimum quiet zone start and end of .25 inches.

Bar coding, sizing, tolerance ratio tolerance per ANSI MH10.8-1983. Print quality must meet or exceed ANSI Grade B per ANSI X3.182, BAR CODE PRINT QUALITY GUIDELINE.

A.8c Adjusting Your Model F30 Scanner

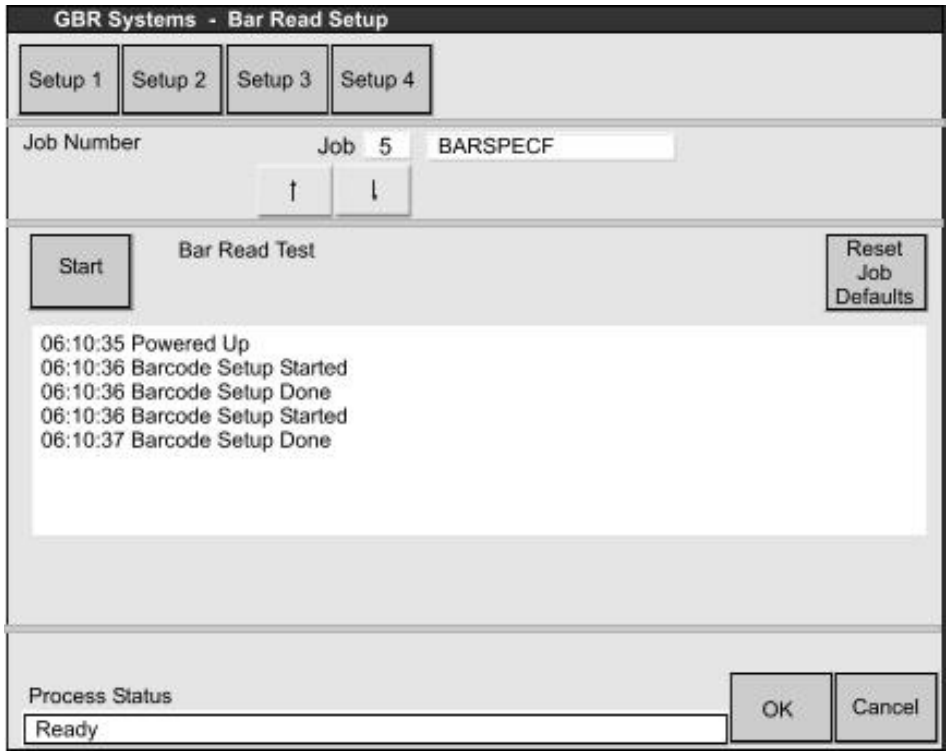
Your scanner can be mounted in any direction depending on the scheme of your bar codes. **Ladder** orientation refers to a bar code whose bars look like a ladder when facing the bar code's direction of travel. **Picket Fence** appear as a picket fence when facing the direction of travel. Regardless of the direction of travel, the scan line must be perpendicular to the bars.

In some applications, codes are printed on glossy paper or covered with a shiny material such as cellophane. When this happens, it is possible that the code surface reflects so much laser light that it is very difficult for the scan head to decode the bar code.

To avoid reflections from the surface of glossy bar codes do not mount the scan head parallel with the object to be scanned. Mount the scan head at a five to ten degree angle so the laser beam reaches the bar code at a slight angle.

A.9 Setting the 420T to Read Laser Bar Code

"Setup" > "Bar Read"



Modifications to the bar setups are retained as long as the bar job defaults are not restored or the internal non-volatile storage is not overwritten by a new 'ini' file or is lost.

Job Number:

Job - Select the job to run by pressing " " or " ".

Note: If your job is not listed, go the next section "Setup 1" to program it in. Refer to the Appendix in this manual for setup parameters for various jobs. If your job is not listed call the factory.

Start:

This will turn the laser on continuously to hand test the lasers positioning. The screen will read **BAR READ:** and an audible beep will sound when the laser reads the code. The results of the read will be shown on the screen.

Reset Job Defaults:

Sets the bar job selected to its defaults, erasing any modifications that may have been done in the setups.

Press **OK to set the job**

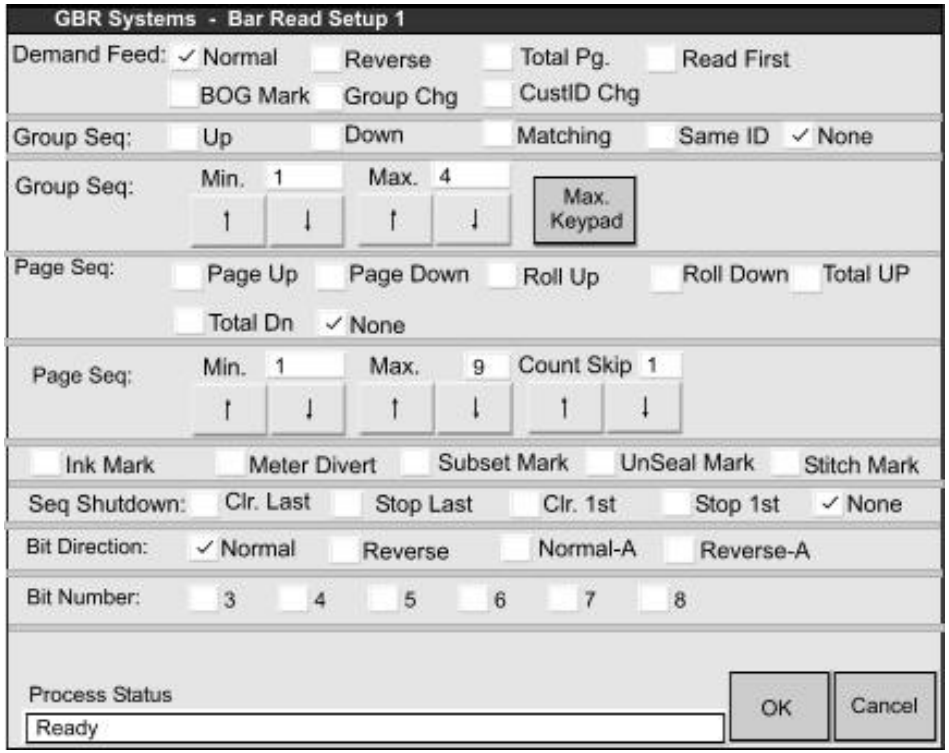
A.9a Adjusting the Paper Guides

In order for your laser scanner to read the bar code there can be nothing blocking its path. The Paper Guides provided with the Laser Option are custom adjustable for your specific code location.

Place these guides to provide as much support evenly across the paper path as possible without interfering with the lasers path.

NOTES:

Bar Read Setup 1


GBR Systems - Bar Read Setup 1
Demand Feed: ✓ Normal Reverse Total Pg. Read First
BOG Mark Group Chg CustID Chg
Group Seq: Up Down Matching Same ID ✓ None
Group Seq: Min. 1 Max. 4
Max. Keypad
Page Seq: Page Up Page Down Roll Up Roll Down Total UP
Total Dn ✓ None
Page Seq: Min. 1 Max. 9 Count Skip 1
Ink Mark Meter Divert Subset Mark UnSeal Mark Stitch Mark
Seq Shutdown: Clr. Last Stop Last Clr. 1st Stop 1st ✓ None
Bit Direction: ✓ Normal Reverse Normal-A Reverse-A
Bit Number: 3 4 5 6 7 8
Process Status
Ready
OK
Cancel

Demand Feed:

Normal

- Mark is on the last page fed. Last page is "1" all others in the pack are "0".

Reverse

- If checked, will handle an inverted Demand Feed sequence. Last page is "0", all others in the pack are "1".

Total Page

- Each sheet has a page number and the total number of pages for it's group. Select "Total Up" or "Total Down" in Page Sequence.

Read First

- The first sheet (Banner Page) of the document is read. The page count information is used to determine how many more sheets to feed and not read. After the last non-read sheet is fed, the next fed sheet will be scanned by the barcode reader to process the next document group.

BOG Mark

Group Chg

CustID Chg

Group Seq:

Purpose - Identify each page as being a part of an individual package. The sequential incrementing of the number ensures the document's printed sequence is maintained.

Up – Match in set. Min to Max to Min

Down – Match in set. Max to Min to Max

Matching – Match in set. Must change each set.

Same ID – Match in set. No change needed

None

Min (0 to 1)

Max (0 to 99999)

"**Max Keypad**" may be used to set a "Max" value through a keypad instead of using the arrow scroll button.

Page Seq. Mark

Purpose - Identify each individual page within a package. The sequential incrementing of the number ensures the documents are assembled in the proper order.

Page Up - Min to Max within sets.

Page Down - Max to Min within sets.

Roll Up – Min to Max to Min across sets

Roll Down – Max to Min to Max across sets

Total Up - (A-Z) Supports “Total Page” demand feed option.

Total Dn - (Z-A)

None

Min (0 to 1)

Max (0 to 999)

Count Skip

Ink Mark

- Mark to drive an ink/zip mark mechanism downstream.

Meter Divert

- Mark to drive a divert mark mechanism downstream.

Subset Mark (NA)

UnSeal Mark

Stitch Mark

Seq (Sequence) Shutdown

Usage - This location is used to maintain an even number of solid marks within a code.

Note: The fields that are marked Optional can be eliminated by operator configuration of the machine. However, when a data field is eliminated package security and integrity suffers.

Bit Direction

Normal - :

Count bits 5 to 1, left to right, bit position 4 to 0, follow standard bit position of character.

Reverse - :

Count bits 1 to 5, left to right, bit position 4 to 0.(B&H)

Normal – A:

For multiple character numeric values. For 5 numeric characters converted to a number, bit positions 16 to 1: 1, 2, 4, 8, 16, 32, 64, 128, 256, 512, 1024, 2048, 4096, 8192, 16384, 32768.

Reverse – A:

For multiple character numeric values. For 5 numeric characters converted to a number, bit positions 1 to 16: 1, 2, 4, 8, 16, 32, 64, 128, 256, 512, 1024, 2048, 4096, 8192, 16384, 32768.

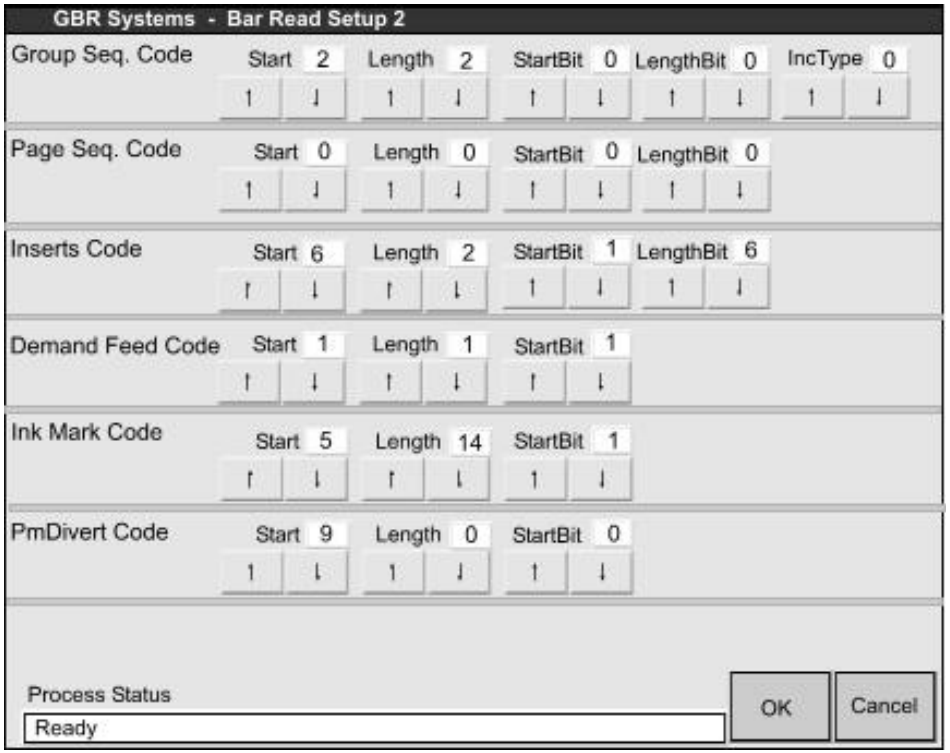
Bit Number:

Establishes the maximum number of bits in one character. This is determined by the type of code being used.

Select from 5 through 8:

- 5 3 of 9 Bar Code
- 6-8 not used at this time

Bar Read Setup 2



The software permits a total of 30 characters in Bar Read, however, physically that isn't always practical due to the length of the code. For instance, 3 of 9 code is physically larger than 128 code (not available on the 420T at this time). A code in excess of 15 characters becomes problematic with a 3 of 9 code but a 128 code can easily exceed 20 characters.

Define the position in the barcode string to extract the information for the following:

Group Seq Code:

- Start (0 to 30). Start character.
- Length (0 to 5). Number of characters.
- For individual bit management use the following.
- Start_Bit (0 to 30). Starting bit position within character.
- Length_Bit (0 to 30). Number of bits.
- IncType -

Page Seq Code:

- Start (0 to 30). Start character.
- Length (0 to 3). Number of characters.
- Start_Bit (0 to 30). Starting bit position within character.
- Length_Bit (0 to 30). Number of bits.

Inserts Code:

- Start (0 to 30). Start character.
- Length (0 to 20). Number of characters.
- Start_Bit (0 to 30). Starting bit position within character.
- Length_Bit (0 to 30). Number of bits.

Demand Feed Code

- Start (0 to 30). Start character.
- Length (0 to 20). Number of characters. Used with Normal-A or Reverse-A, multiple character numeric values,
- Start_Bit (0 to 20). Starting bit position within character.

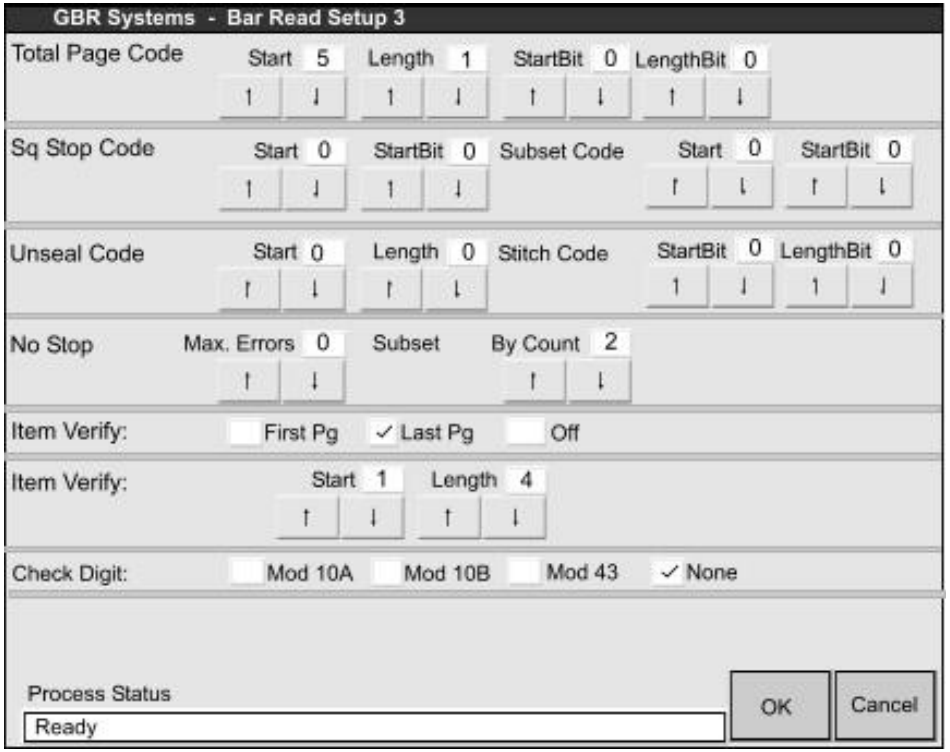
Ink Mark Code:

- Start (0 to 30). Start character.
- Length (0 to 20). Number of characters. Used with Normal-A or Reverse-A, multiple character numeric values,
- Start_Bit (0 to 20). Starting bit position within character.

PmDivert Code:

- Start (0 to 30). Start character.
- Length (0 to 20). Number of characters. Used with Normal-A or Reverse-A, multiple character numeric values,
- Start_Bit (0 to 20). Starting bit position within character

Bar Read Setup 3



Total Page Code:

- Start (0 to 30). Start character.
- Length (0 to 5). Number of characters.
- For bit management use the following.
- Start_Bit (0 to 30). Starting bit position within character.
- Length_Bit (0 to 30). Number of bits.

Sq Stop Code:

- Start (0 to 30). Start character.
- Length (0 to 20). Number of characters.
- Start_Bit (0 to 20). Starting bit position within character.
- Subset Code
- Start
- StartBit

Unseal Code:

- Start
- Length

Stitch Code:

- StartBit
- LengthBit

No Stop:

- Max. Errors

Subset:

- By Count

Item Verify:

- First Pg
- Last Pg
- Off

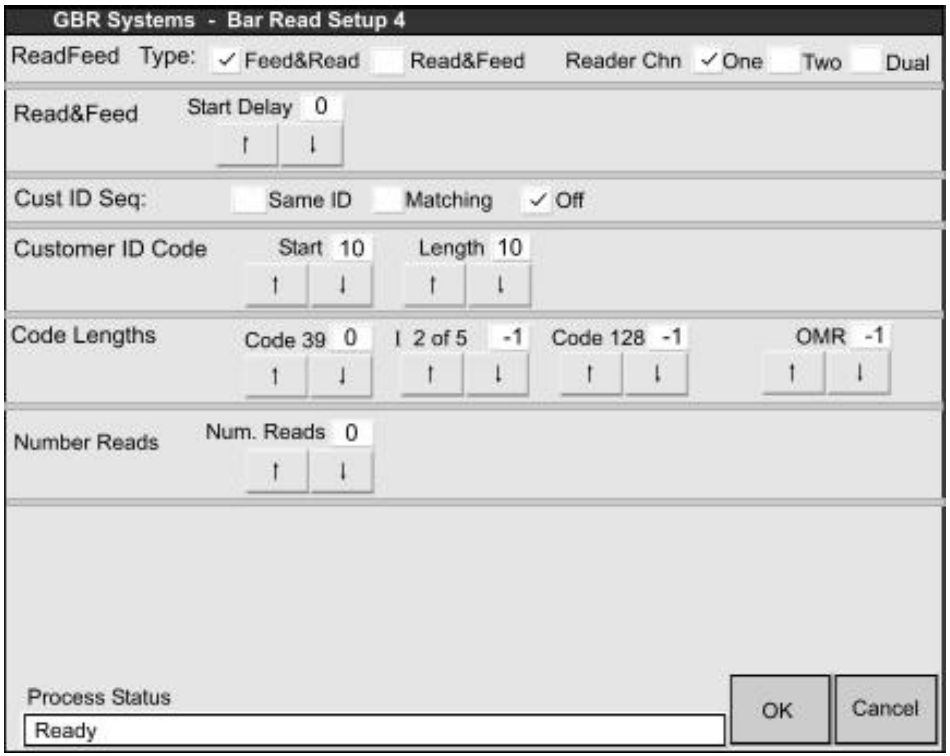
Item Verify:

- Start
- Length

Check Digit:

- Mod 10A
- Mod 10B
- Mod 43
- None

Bar Read Setup 4


GBR Systems - Bar Read Setup 4
ReadFeed Type: ✓ Feed&Read Read&Feed Reader Chn ✓ One Two Dual
Read&Feed Start Delay 0
Cust ID Seq: Same ID Matching ✓ Off
Customer ID Code Start 10 Length 10
Code Lengths Code 39 0 I 2 of 5 -1 Code 128 -1 OMR -1
Number Reads Num. Reads 0
Process Status
Ready
OK
Cancel

ReadFeed Type:

- Feed&Read – When it is desired to Feed first and then Read (normal)
- Read&Feed – When it is desired to Read before Feed (In cases where the EOG (end of group) must be known before feeding next page).

Read&Feed:

- Start Delay – Only used with Read&Feed, and it is to delay the read to let the previously fed document get clear of the feeder.

Cust ID Seq:

- Same ID – Code group matching between sets.
- Matching – Code group matching only within a set.
- Off – disables code group matching

Customer ID Code:

- Start – Customer number, group ID or other number can be found beginning with this character in the Bar Code.
- Length – Number of lines after the start, i.e. start=6 length=3 (From the gatemark the start is found at line 6 and the length is line 6, 7 and 8)

Code Lengths:

-1 disables reading in each category, 0 enables reading with variable length and any number indicates length, e.g. Code 39 with a length of 6 = a code block with 6 characters.

- Code 39 – 3 of 9 Bar Code
- I 2 of 5 – Interleaved 2 of 5 Bar Code
- Code 128

Number Reads:

- Num. Reads – the number of times the reader should scan and take average to ensure good read. (poor printing can sometimes be a reason for multiple reads)

ADDENDUM I

Overview

This document outlines the setup of the Postal Meters, Weight Calculation and Operation of Postal Metering on the GBR 420T.

Note: The order of postal meters to weight was reversed at 26412.044 on the GBR420

GBR 420 and GBR438/420T prior to 26412.044(Aug. 2001):

LOW to High, Postal Meter 1 to Postal Meter 3.

GBR438/420T after 26412.044(Aug. 2001):

HIGH to Low, Postal Meter 1 to Postal Meter 3 to allow Postal Meter 1, Postal Meter Divert, to divert an over weight/size package first before the meters.

Note: Revised from the GBR 438 document: n4wght1.doc.

Installation

- The Postal Meter kit uses existing Input/Output(IO) points in the GBR420T and an existing cable kit and normally operates:
  - Postal Meter Divert(Test point “Postal Meter Divert”, Rack1:Point19) is Postal Meter 1(PM1).
  - Select Station 7(Test point “Separation Sol #7”, Rack1:Point4) is Postal Meter 2(PM2).
  - Select Station 8(Test point “Separation Sol #8”, Rack1:Point6) is Postal Meter 3(PM3).
- If you use Stations 7 and 8, there are alternate IO points that can be used, call the factory.
- In general the Postal Meters are driven by 24VDC, 3AMP output modules. 24VDC power generally comes from the inserter, but may come from the GBR420T. If there are two power supplies, care must be taken not to cross connect them.
- General installations use 1 or 2 postal meters and we normally use GBR420T postal meter 2 and 3 leaving postal meter 1, Postal Meter Divert, to be used as a postal meter or an oversize divert station.
- The actual order of the meters after the end of the Inserter should be Hi to Lo weight, PM1, PM2, PM3.
- The Postal Meters must be positioned after the last index position of the Inserter and all meters must be stacked as close as possible together.

Operation

- The GBR420T tracks the pack only to the last index position of the inserter. The GBR420T actually disables the meters which are not to be used leaving the one meter enabled to meter the pack.
- The GBR420T uses the inserter degree encoder to provide “fine timing” by degrees of the disable/enable signal to the Postal Meters.

The “ON At” degree must come AFTER the Logical Shift(90 Deg.) of the pack data in the GBR420T inserter software module. The “OFF At” degree must come BEFORE the next Logical Shift(90 Deg.) of the pack data in the GBR420T

inserter software module. This cycle should occur between 100 and 80 degrees.

- Only one pack can traverse the meters at any time.

Setups

Lineread, Barread Setup:

- Postal Meter Divert Enable(Postal Meter 1).
  - Select Postal Meter Divert Enable “ON”, to operate from a read mark ONLY.
  - Select Postal Meter Divert Enable “OFF”, to operate from Weights ONLY.

Inserter Setup:

Postal Meter By Weight Enable

- Check ON to enable Postal Meters

Inserter Setup 2:

Postal Meter Divert(Postal Meter 1)

- Enter Meter “ON AT:’ in degrees, 0 to 350. After 90 degrees.

- Enter Meter “OFF AT:’ in degrees, 0 to 350. Before 90 degrees.
- Enter Meter Position ‘STA:
  - 1 to 12 after envelope insert station.
  - ‘0’ to Disable this meter.
- Enter Point Option ‘PT:’
  - 9 = Postal Meter Divert - DEFAULT
  - 10 = Postal Meter Divert - Inverted Signal

Inserter Setup 3:

Postal Meter 2:

- Enter Meter “ON AT:’ in degrees, 0 to 350. After 90 degrees.
- Enter Meter “OFF AT:’ in degrees, 0 to 350. Before 90 degrees.
- Enter Meter Position ‘STA:
  - 1 to 12 after envelope insert station.
  - ‘0’ to Disable this meter.
- Enter Meter Output Point Option ‘PT:’
  - 1 = Station 7 Select - DEFAULT
  - 2 = Station 8 Select
  - 3 = Inserter E-Stop
  - 4 = Station 1 Error
  - 5 = Station 7 Select - Inverted Signal
  - 6 = Station 8 Select - Inverted Signal
  - 7 = Inserter E-Stop - Inverted Signal
  - 8 = Station 1 Error - Inverted Signal
  - 9 = Postal Meter Divert. DO NOT USE.
  - 10 = Inverted Postal Meter Divert. DO NOT USE.
  - 11 = Moistener
  - 12 = Moistener - Inverted

Postal Meter 3:

- Enter Meter “ON AT:’ in degrees, 0 to 350. After 90 degrees.
- Enter Meter “OFF AT:’ in degrees, 0 to 350. Before 90 degrees.
- Enter Meter Position ‘STA:
  - 1 to 12 after envelope insert station.
  - ‘0’ to Disable this meter.
- Enter Meter Output Point Option ‘PT:’
  - 1 = Station 7 Select
  - 2 = Station 8 Select - DEFAULT
  - 3 = Inserter E-Stop
  - 4 = Station 1 Error
  - 5 = Station 7 Select - Inverted Signal
  - 6 = Station 8 Select - Inverted Signal
  - 7 = Inserter E-Stop - Inverted Signal
  - 8 = Station 1 Error - Inverted Signal
  - 9 = Postal Meter Divert. DO NOT USE.
  - 10 = Inverted Postal Meter Divert. DO NOT USE.
  - 11 = Moistener
  - 12 = Moistener - Inverted

Postal Meter Weights :

- Meter 1 to 2 Weight Value(00000 to 60000)
- Meter 2 to 3 Weight Value(00000 to 60000)

Weight Page and Envelope:

- Enter Page Weight Value(00000 to 60000)
- Enter Envelope Weight Value(00000 to 60000)

Weight Inserts 1 2 3 4

- Enter Insert >1 Weight Value(00000 to 60000)
- Enter Insert >2 Weight Value(00000 to 60000)
- Enter Insert >3 Weight Value(00000 to 60000)
- Enter Insert >4 Weight Value(00000 to 60000)

Weight Inserts 5 6 7 8

- Enter Insert >5 Weight Value(00000 to 60000)
- Enter Insert >6 Weight Value(00000 to 60000)
- Enter Insert >7 Weight Value(00000 to 60000)
- Enter Insert >8 Weight Value(00000 to 60000)

Weight Calculation

Postal Meter Selection Calculation. Done when pack is transferred to the Inserter.

Package Weight = Envelope Weight + (No. Pages * Page Weight) + (Insert1 * Insert1 Weight)

+ (Insert2 * Insert2 Weight) + . . . through 8 inserts.

If Package Weight is greater than or equal(>=) to Meter 1 to 2 Weight Break Value

- Then Meter 1 operates.

If Package Weight I less than(<) Meter 1 to 2 Weight Break Value and greater than or equal(>=) to Meter 2 to 3 Weight Break Value

- Then Meter 2 operates.

If Package Weight less than(<) Meter 2 to 3 Weight Break Value (and less than(<) Meter 1 to 2 Weight Break Value)

- Then Meter 3 operates.

Three Meter Example

Meter 1 to 2 Weight Break Value = 30

Meter 2 to 3 Weight Break Value = 20

Package	Weight	Meter 1	Meter 2	Meter 3
X				
10				X
15				X
X				
25			X	
X				
35		X		

Three Meter Setup

Lineread Setup:

- Select Postal Meter Divert Enable “OFF”, to operate from Weights ONLY.

Inserter Setup:

- Postal Meter By Weight : Check ON to enable Postal Meters.

Inserter Setup 2:

- Postal Meter Divert(Postal Meter 1)
  - 200. Meter “ON AT:’ in degrees.
  - 10. Meter “OFF AT:’ in degrees.
  - 6. Meter Position ‘STA:’ (6 stations after envelope insert station).
  - 9. Enter Point Option ‘PT:’ (9 = Postal Meter Divert)

Inserter Setup 3:

- Postal Meter 2
  - 240. Meter “ON AT:’ in degrees.
  - 10. Meter “OFF AT:’ in degrees.
  - 6. Meter Position ‘STA:’ (6 stations after envelope insert station).
  - 1. Enter Point Option ‘PT:’ (1 = Select Station 7)
- Postal Meter 3
  - 280. Meter “ON AT:’ in degrees.
  - 10. Meter “OFF AT:’ in degrees.
  - 6. Meter Position ‘STA:’ (6 stations after envelope insert station).
  - 2. Enter Point Option ‘PT:’ (2 = Select Station 8)
- Postal Meter Weights
  - 30. Meter 1 to 2 Weight Value.
  - 20. Meter 2 to 3 Weight Value

Two Meter Example

Meter 1 to 2 Weight Break Value = 99. Must be greater than any pack expected.

Meter 2 to 3 Weight Break Value = 20

Package Weight	Meter 2	Meter 3
6		X
11		X
19		X
20	X	
26	X	
31	X	

Three Meter Setup:

Lineread Setup:

- Select Postal Meter Divert Enable “OFF”, to operate from Weights ONLY.

Inserter Setup:

Postal Meter By Weight : Check ON to enable Postal Meters.

Inserter Setup 2:

- Postal Meter Divert(Postal Meter 1)
  - 200. Meter “ON AT:’ in degrees.
  - 10. Meter “OFF AT:’ in degrees.
  - 0. Meter Position ‘STA:’ (0 disabled).
  - 9. Enter Point Option ‘PT:’ (9 = Postal Meter Divert)

Inserter Setup 3:

- Postal Meter 2
  - 200. Meter “ON AT:’ in degrees.
  - 10. Meter “OFF AT:’ in degrees.
  - 6. Meter Position ‘STA:’ (6 stations after envelope insert station).
  - 1. Enter Point Option ‘PT:’ (1 = Select Station 7)
- Postal Meter 3
  - 240. Meter “ON AT:’ in degrees.
  - 60. Meter “OFF AT:’ in degrees.
  - 6. Meter Position ‘STA:’ (6 stations after envelope insert station).
  - 2. Enter Point Option ‘PT:’ (2 = Select Station 8)
- Postal Meter Weights
  - 99. Meter 1 to 2 Weight Value.
  - 20. Meter 2 to 3 Weight Value.

Notes

- Weight Values are 5 digit numbers of arbitrary dimension. Be consistent, use tens or hundreds of an ounce(or gram) for all values. The maximum allowable internally computed package(pages + envelope + inserts)total value is 64000.

- Meter Output Point Option selection locks out standard operation of the output selected, i.e. ‘Station 7 Select’ selection does not allow standard Inserter Station 7 select through reading. Choose another Meter Output Point to resolve conflicts with actual installations.

- All meters are positioned at the same Station. This is the station after the last index track station of the inserter. The number is counted from the Envelope Insert Station of the inserter.

- Factory testing has shown that the pack moves out of the last index track station between 200 and 350 degrees. Meter enable imprint is timing is

based on the 'ON AT' degree for each meter. The first meter in line tested at 200 degrees. The second meter inline required some delay and was tested at 240 degrees. At higher speeds, packs imprinted with the first meter inline were mistakenly being imprinted by the second meter inline unless its 'ON AT' degree was slightly delayed.

Addendum II

New 438/420T - Exit Interface Serial Communication Specification
January 21, 2003— V. 02 -
File:g:\engineering_softwarelgbr_n420\n423202.doc

The purpose of this document is to specify a method of passing Inserter control data across a serial interface (RS-232) as the package exits the machine

Signal Specification

RS-232

- 19200 Baud, 7-Bit, Even Parity, 2-Stop Bits
- 19200 Baud, 8-Bit, No Parity, 1 -Stop Bits(Only for 8.. Friedberg 1 Protocol)

Connection

- DB9, TXD, RXD, GND

Note

- An Inserter Demand Signal or Inserter Degree Encoder Signal(separate signals) is required from the Inserter synchronizing the passing of the pack to the Inserter and data transmission
- INSERTER OPEN FEED: Transmission starts when the transfer conveyor is indexed and a pack is being transferred out.
- INSERTER GRIPPER: Transmission starts when the trail edge of the pack is being transferred out.
- HOPPERFILL or CONVEYOR: Transmission starts when the transfer conveyor is indexed and a pack is being transferred out.

Protocols

NA = Not Available

0) No Comm.

Exit Communication is disabled

1) RR Donnely 1 Protocol:

Character Data Description

1 '0' - '7' ASCII numbers 0 to 7, 30' hex to 37 hex. Barcode character 1

- Bit 0 = Station 1
- Bit 1 = Station 2
- Bit 2 = Station 3

2 '0' - '7' ASCII numbers 0 to 7, 30 hex to 37 hex, Barcode character 2

- Bit 0 = Station 4
- Bit 1 = Station 5
- Bit 2 = Station 6

3 '0' -'7' ASCII numbers 0 to 7, 30 hex to 37 hex. Barcode character 3

- Bit 0 = Station 7
- Bit 1 = Station 8
- Bit 2 = Station 9

4 '0' - '7' ASCII numbers 0 to 7, 30 hex to 37 hex. Barcode character 4

- Bit 0 = Station 10
- Bit 1 = Station 11
- Bit 2 = Station 12

5 '0' - '9' ASCII numbers 0 to 9, 30 hex to 39 hex.. Barcode character 5

- End of Bag. NA.

6 ‘0’ - ‘9’ ASCII numbers 0 to 9, 30 hex to 39 hex. Barcode character 6

- Future NA..

7 CR ASCII Carriage Return, OD hex

Notes

- Characters 1 to 6 are set to ‘9’, 39 hex, if the pack is not valid.
- A 5 msec delay between characters is used. NA

There is no acknowledge or response from the Inserter

2) RR Donnely 2 Protocol:

Character Data Description

1 ‘0’ -’7’ ASCII numbers 0 to 7, 30 hex to 37 hex.. Barcode character 1

- Bit 0 = Station 1
- Bit 1 = Station 2
- Bit 2 = Station 3

2 ‘0’ - ‘7’ ASCII numbers 0 to 7, 30 hex to 37 hex. Barcode character 2

- Bit 0 = Station 4
- Bit 1 = Station 5
- Bit 2 = Station 6

3 ‘0’ – ‘7’ ASCII numbers 0 to 7, 30 hex to 37 hex.. Barcode character 3

- Bit 0 = Station 7
- Bit 1 = Station 8
- Bit 2 = Station 9

4 ‘0’ - ‘7’ ASCII numbers 0 to 7, 30 hex to 37 hex. Barcode character 4

- Bit 0 = Station 10
- Bit 1 = Station 11
- Bit 2 = Station 12

5 ‘0’ - ‘9’ ASCII numbers 0 to 9, 30 hex to 39 hex.. Barcode character 5

End of Bag.. NA

6 ‘0’ - ‘9’ ASCII numbers 0 to 9, 30 hex to 39 hex.. Barcode character 6

Future NA.

7 ‘0’ - ‘9’ ASCII numbers 0 to 9, 30 hex to 39 hex. Barcode character 7

—

8 ‘0’ - `9’ ASCII numbers 0 to 9, 30 hex to 39 hex. Barcode character 8

—

9 ‘0’ – ‘9’ ASCII numbers 0 to 9, 30 hex to 39 hex.. Barcode character 9

—

10 ‘0’ -’9’ ASCII numbers 0 to 9, 30 hex to 39 hex.. Barcode character 10

11 ‘0’ - ‘9’ ASCII numbers 0 to 9, 30 hex to 39 hex, Barcode character 11

12 ‘0’ - ‘9’ ASCII numbers 0 to 9, 30 hex to 39 hex.. Barcode character 12

13 CR ASCII Carriage Return, OD hex.

Notes

- Characters I to 6 are set to ‘9’, 39 hex, if the pack is not valid.
- A 5 msec delay between characters is used . NA
- There is no acknowledge or response from the Inserter.

3) Pinnacle 1 Protocol:

Character Data Description

1 '0' -'7' ASCII numbers 0 to 7, 30 hex to 37 hex.

- Bit 0 = Station 1
- Bit 1 = Station 2
- Bit 2 = Station 3

2 '0' - '7' ASCII numbers 0 to 7, 30 hex to 37 hex.

- Bit 0 = Station 4
- Bit 1 = Station 5
- Bit 2 = Station 6

3 '0' - '7' ASCII numbers 0 to 7, 30 hex to 37 hex.

- Bit 0 = Station 7
- Bit 1 = Station 8
- Bit 2 = Station 9

4 '0' -'9' ASCII numbers 0 to 9, 30 hex to 39 hex.

- Package Page Count - Count 0 to 9 pages.(9, 3A hex, 3B hex etc..)

5 '0' -'7' ASCII numbers 0 to 7, 30 hex to 37 hex.,

- Bit 0 = 0
- Bit 1 = Sequential Stop Clear Accumulator Pack
- Bit 2 = Sequential Stop Stop and Retain Accumulator Pack

6 '0' - '7' ASCII numbers 0 to 7, 30 hex to 37 hex.

- Bit 0 = Postal Sort Mark, Ink Mark, Kick Mark, Envelope Mark
- Bit 1 = Divert by Read Mark, Divert by Read Errors
- Bit 2 = Pack Valid, Good Pack

7 CR ASCII Carriage Return, OD hex.

Notes

Characters 1 to 6 are set to '9', 39 hex, if the pack is not valid.

There is no acknowledge or response from the inserter

4) Pinnacle 2 Protocol:

Character Data Description

1 '0' -'7' ASCII numbers 0 to 7, 30 hex to 37 hex.

- Bit 0 = Station 1
- Bit 1 = Station 2
- Bit 2 = Station 3

2 '0' - '7' ASCII numbers 0 to 7, 30 hex to 37 hex.

- Bit 0 = Station 4
- Bit 1 = Station 5
- Bit 2 = Station 6

3 '0' – '7' ASCII numbers 0 to 7, 30 hex to 37 hex.

- Bit 0 = Station 7
- Bit 1 = Station 8
- Bit 2 = Station 9

4 '0' - '9' ASCII numbers 0 to 9, 30 hex to 39 hex.

- Package Page Count – count 0 to 9 pages.(>9,hex, 3B hex etc.)

5 '0' – '7' ASCII numbers 0 to 7, 30 hex to 37 hex.

- Bit 0 = 0
- Bit 1 = Sequential Stop Clear Accumulator Pack
- Bit 2 = Sequential Stop Stop and Retain Accumulator Pack

6 '0' – '7' ASCII numbers 0 to 7, 30 hex to 37 hex.

- Bit 0 = Postal Sort Mark, Ink Mark, Kick Mark, Envelope Mark
- Bit 1 = Divert by Read Mark, Divert by Read Errors
- Bit 2 = Pack Valid, Good pack

7 CR ASCII Carriage Return, 0D hex.

Notes

- Package Page Count — Count 0 to 9 pages.(>9, 3A hex, 3B hex etc.)
- 10 pages = 3A hex =':', 11 pages = 3B hex = ';', etc through the ASCII chart.
- There is no acknowledge or response from the Inserter.

5) General Protocol:

Character Data Description

1 '0' - '7' ASCII numbers 0 to 7, 30 hex to 37 hex.

- Bit 0 = Station 1
- Bit I = Station 2
- Bit 2 = Station 3

2 '0' - '7' ASCII numbers 0 to 7, 30 hex to 37 hex.

- Bit 0 = Station 4
- Bit 1 = Station 5
- Bit 2 = Station 6

3 '0' — '7' ASCII numbers 0 to 7, 30 hex to 37 hex..

- Bit 0 = Station 7 Bit 1 = Station 8 Bit 2 = Station 9

4 '0' — '9' ASCII numbers 0 to 9, 30 hex to 39 hex.

- Package Page Count - Count 0 to 9 pages.(> 9, 3A hex, 3B hex etc)

5 '0' - '7' ASCII numbers 0 to 7, 30 hex to 37 hex.

- Bit 0 = 0
- Bit 1 = Sequential Stop Clear Accumulator Pack
- Bit 2 = Sequential Stop Stop and Retain Accumulator Pack

6 '0' -'7' ASCII numbers 0 t0 7, 30 hex to 37 hex.

- Bit 0 = Postal Sort Mark, Ink Mark, Kick Mark, Envelope Mark
- Bit 1 = Divert by Read Mark, Divert by Read Errors
- Bit 2 = Pack Valid, Good Pack

7-11 "1 nnnn"ASCII numbers "10000" - "19999"

- Nnnn is four low digits of group number

12 '0' -'9' ASCII numbers 0 to 9 to 9, 30 hex to 39 hex.

- Internal generated rolling sequence number,

13 CR ASCII Carriage Return, OD hex.

Notes:

- Package Page Count - Count 0 to 9 pages.(> 9, 3A hex, 3B hex etc..) W 10 pages = 3A hex ='.', 11 pages = 3B hex = ';', etc through the ASCII chart.
- There is no acknowledge or response from the Inserter.

6) Tampa 1 Protocol:

Character Data Description

1 '0' —'7' ASCII numbers 0 to 7, 30 hex to 37 hex.

- Bit 0 = Station 1

- Bit 1 = Station 2
- Bit 2 = Station 3

2 '0' —'7' ASCII numbers 0 to 7, 30 hex to 37 hex

- Bit 0 = Station 4
- Bit 1 = Station 5
- Bit 2 = Station 6

3 '0' - '7' ASCII numbers 0 to 7, 30 hex to 37 hex

- Bit 0 = Station 7
- Bit 1 = Station 8
- Bit 2 = Station 9

4 '0' —'9' ASCII numbers 0 to 9, 30 hex to 39 hex

- Package Page Count - Count 0 to 9 pages.(> 9, 3A hex, 3B hex etc.)

5 '0' - '7' ASCII numbers 0 to 7, 30 hex to 37 hex

- Bit 0 = End NA
- Bit1= - -
- Bit2 = -

6 '0' - '7' ASCII numbers 0 to 7, 30 hex to 37 hex.

- Bit 0 = Postal Sort Mark, ink Mark, Kick Mark, Envelope Mark
- Bit 1 = Divert by Read Mark, Divert by Read Errors
- Bit 2 = Pack Valid, Good Pack

7 CR ASCII Carriage Return, OD hex

Response:

Character Data Description

1 '0' ASCII number 0, 30 hex.

- Acknowledge from the Inserter that previous transmittal was accepted and next transmittal can be made. Previous package has moved forward an index position.

Notes:

- Package Page Count – Count 0 to 9 pages.(>9, 3A hex, 3B hex etc.)
- 10 pages = 3A hex =':', 11 pages = 3B hex =';', etc through the ASCII chart.
- Acknowledge is required from the Inserter.
- Acknowledge response timeout is set by Engin. Value 36, default is 250 msec.
- Acknowledge response number of re-xmits is set by Engin. Value 37, default is 1.

7) Zaandam I Protocol:

Character Data Description

1 '0' — '7' ASCII numbers 0 to 7, 30 hex to 37 hex.

- Bit 0 = Station 1 Bit 1 = Station 2 Bit 2 = Station 3

2 '0' -'7' ASCII numbers 0 to 7, 30 hex to 37 hex.

- Bit 0 = Station 4 Bit 1 = Station 5 Bit 2 = Station 6

3 '0' - '7' ASCII numbers 0 to 7, 30 hex to 37 hex.

- Bit 0 = Station 7 Bit 1 = Station 8 Bit 2 = Station 9

4 '0' - '9' ASCII numbers 0 to 9, 30 hex to 39 hex..

- Package Page Count - Count 0 to 9 pages.(> 9, 3A hex, 3B hex etc.)

5 '0' - '7' ASCII numbers 0 to 7, 30 hex to 37 hex.

- Bit 0 = End NA

6 '0' - '7' ASCII numbers 0 to 7, 30 hex to 37 hex.

- Bit 0 = Postal Sort Mark, Ink Mark, Kick Mark, Envelope Mark
- Bit 1 = Divert by Read Mark, Divert by Read Errors
- Bit 2 = Pack Valid, Good Pack

7 CR ASCII Carriage Return, OD hex.

Notes:

- Package Page Count —- Count 0 to 9 pages.(> 9, 3A hex, 3B hex etc..)
- 10 pages = 3A hex 11 pages = 3B hex = ';', etc through the ASCII chart.

There is no acknowledge or response from the Inserter

8) Friedberg 1 Protocol:

Character Data Description

1 0x2 2 hex.

2 '0' ASCII number 0, 30 hex.

3 '0' ASCII number 0, 30 hex

4 '0' — `9' ASCII numbers 0 to 9, 30 hex to 39 hex.

- Package Page Count— 10's digit

5 '0' — '9' ASCII numbers 0 to 9, 30 hex to 39 hex.

- Package Page Count - 1's digit

6 '0' - '7' ASCII numbers 0 to 7, 30 hex to 37 hex.

- Bit 0 = Station 1
- Bit 1 = Station 2
- Bit 2 = Station 3

7 '0' - '7' ASCII numbers 0 to 7, 30 hex to 37 hex..

- Bit 0 = Station 4
- Bit 1 = Station 5
- Bit 2 = Station 6

8 '0' – '7' ASCII numbers 0 to 7, 30 hex to 37 hex.

- Bit 0 = Station 7
- Bit 1 = Station 8
- Bit 2 = Station 9

9 '0' – '7' ASCII numbers 0 to 7, 30 hex to 37 hex.

- Bit 0 = Postal Sort Mark, Ink Mark, Kick Mark, Envelope Mark
- Bit 1 = Divert by Read Mark, Divert by Read Errors
- Bit 2 = Pack NOT Valid, BAD Pack

10 CR ASCII Carriage Return, 0D hex.

9) General 2 Protocol:

Character Data Description

1 '0' - '7' ASCII numbers 0 to 7, 30 hex to 37 hex.

- Bit 0 = Station 1
- Bit 1 = Station 2
- Bit 2 = Station 3

2 '0' — '7' ASCII numbers 0 to 7, 30 hex to 37 hex,

- Bit 0 = Station 4
- Bit 1 = Station 5
- Bit 2 = Station 6

3 '0' - '7' ASCII numbers 0 to 7, 30 hex to 37 hex.

- Bit 0 = Station 7
- Bit 1 = Station 8
- Bit 2 = Station 9

4 '0' - '9' ASCII numbers 0 to 9, 30 hex to 39 hex,

- Package Page Count - 10's digit

5 '0' - '9' ASCII numbers 0 to 9, 30 hex to 39 hex.

- Package Page Count - 1's digit

6 '0' —'7' ASCII numbers 0 to 7, 30 hex to 37 hex.

- Bit 0 = 0
- Bit 1 = Sequential Stop Clear Accumulator Pack
- Bit 2 = Sequential Stop Stop and Retain Accumulator Pack

7 '0' —'7' ASCII numbers 0 to 7, 30 hex to 37 hex,

- Bit 0 = Postal Sort Mark, Ink Mark, Kick Mark, Envelope Mark
- Bit 1 = Divert by Read Mark, Divert by Read Errors
- Bit 2 = Pack Valid, Good Pack

8-12 "1 nnnn"ASCII numbers "10000" - "19999".

- Nnnn is four low digits of group number

13 '0' — '9' ASCII numbers 0 to 9 to 9, 30 hex to 39 hex.

- Internal generated rolling sequence number.

14 CR ASCII Carriage Return, OD hex.

Notes

There is no acknowledge or response from the inserter

General Notes

- There is no acknowledge or response from the Inserter except for 6) Tampa 1 Protocol,
- Pack Valid or Good Pack.. 11ON: no known errors, 0/OFF; may contain an error.
- Divert by Read Mark, Divert by Read Errors. 1/ON: divert pack, 0/OFF: DO NOT divert pack..
  - If Divert is ON and Pack Valid is OFF the pack is being diverted because it may have an error.
  - If Divert is ON and Pack Valid is ON the pack is being diverted because of a read mark..

Read or NO Read(Fixed Pack) Station Selection Operation

- Read
  - The machine Inserter Setup Station Selection allows stations to be selected by read mark or operator set ON, or operator set OFF.
- NO Read
  - Normally with Read Off all stations are set ON.
  - We will modify the machine to set ON stations which are selected for read mark or operator set ON. We set OFF only those stations operator set for OFF,
  - Postal Sort Mark/Envelope Mark and Divert by *Read* will be set OFF. Pack Valid will be set ON
  - Exit Comm Setup Test Button: The package data is set to:
  - Number pages = 3
- Pack valid = 1
- Divert = 1
- Ink mark = 1
- Group = 321
- Sequence number = 9
- Station 1 = 1
- Station 2 = 0

- Station 3 = 1
- Station 4 = 0
- Station 5 = 1
- Station 6 = 0
- Station 7 = 1
- Station 8 = 0
- Station 9 = 1

The selected protocol formats the test data and sends the message.

SECTION B PREVENTATIVE MAINTENANCE

B.1 Test equipment and tools

- ·Portable Scope Meter
- ·Standard & Metric Hex Wrenches
- ·Small Blade Flat Screwdriver
- ·Philips Head Screwdriver

B.2 General procedures

WARNING!

DO NOT ATTEMPT TO CLEAN THE SMART FEEDER WHEN THE MACHINE IS RUNNING. ATTEMPTING TO DO SO COULD RESULT IN INJURY. BE SURE THAT MACHINE POWER IS OFF AT ALL TIMES WHEN CLEANING.

B.2a Cleaning the machine

The 420T should be cleaned daily to remove any dirt or dust that may interfere with the operation of the machine. Paper dust collected in motion areas could impede and/or damage integral parts of the folder. Paper dust can also impede read quality if it accumulates on the read heads and paper sensors. Excess dirt or toner build-up (from laser printing) on the feed belts could result in damage to the material and/or premature wear of the feed belts. Therefore, it is important to perform the following daily cleaning instructions:

1. Clean ALL Feed Belts.

2. Remove ALL Paper Dust.

3. Clean the Fold Rollers

4. Clean the Machine Cabinets and Covers.

B.2a1 Cleaning the Fold Rollers

All accumulated paper dust should either be brushed or vacuumed from the 420T. Clean all accumulated paper dust from the electronic paper sensors.

B.2a2 Cleaning the Fold Rollers

DO NOT USE ANY LIQUID ON THE FOLD ROLLERS! The fold plates must be removed in order to clean all fold rollers. For more information on cleaning the fold rollers, refer to your 420T Operator Manual.

B.2a3 Machine Cabinets and Covers

Clean the machine cabinets and covers using a soft damp cloth.

B.2a4 Paper Hopper

The feed belt should be cleaned with a substance such as isopropyl alcohol that does not leave a film. Apply some alcohol to a rag then lightly rub all dirt and film off of the belts.

B.2a5 Singulator

The Singulator must be as clean as possible at all times to insure the proper feeding and singulation of paper by the feed belt. This may be done first making sure that the singulator is not worn. If so, loosen the small set screw on the operator side and rotate the roller to a point where a rounded spot on the roller will contact the paper.

NOTE: If there is no rounded spot available, the singulator needs to be replaced immediately.

Once this is accomplished, raise the singulator roller approximately 3/4" from present setting. Pass an alcohol dampened rag under the bottom of the singulator roller. Be sure that it is making sufficient contact to clean away all dirt and debris from the contact portion of the singulator roller.

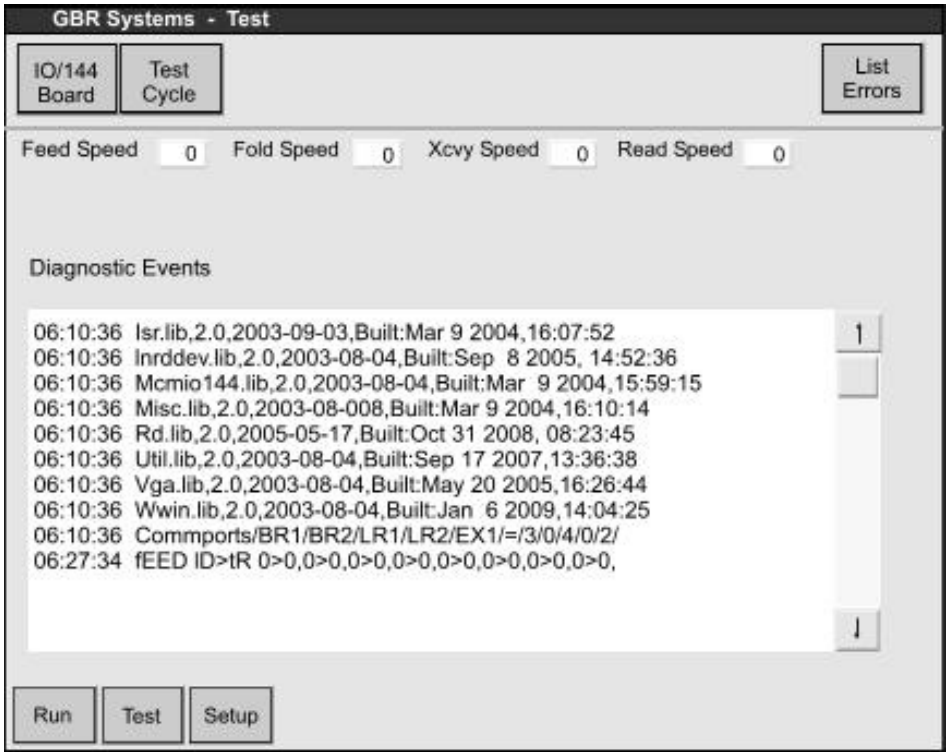
B.2b Lubrication

No lubrication is required on the 420T.

NOTE: If a mechanical component is out of line or deformed, a small amount of oil may be used as a short term fix (to eliminate noise or binding) until the component can be replaced.

C.1 "TEST" SCREEN OPERATION

Diagnosis of the system begins with these tests. If it is found that the displayed information indicates a problem, refer to the schematics in section D or section F.



C.1a Speed Test

Pressing the green "Power On" switch on the keyboard will start the feeder and folder motors and display the speeds of the feeder, folder, transfer conveyor, and read encoders.

C.1b Test Cycle

Press "Test Cycle" for 100 msec On/300 msec Off cycle.

Press "Test Cycle" again to stop test.

The speeds indicated are approximate (inches per second).

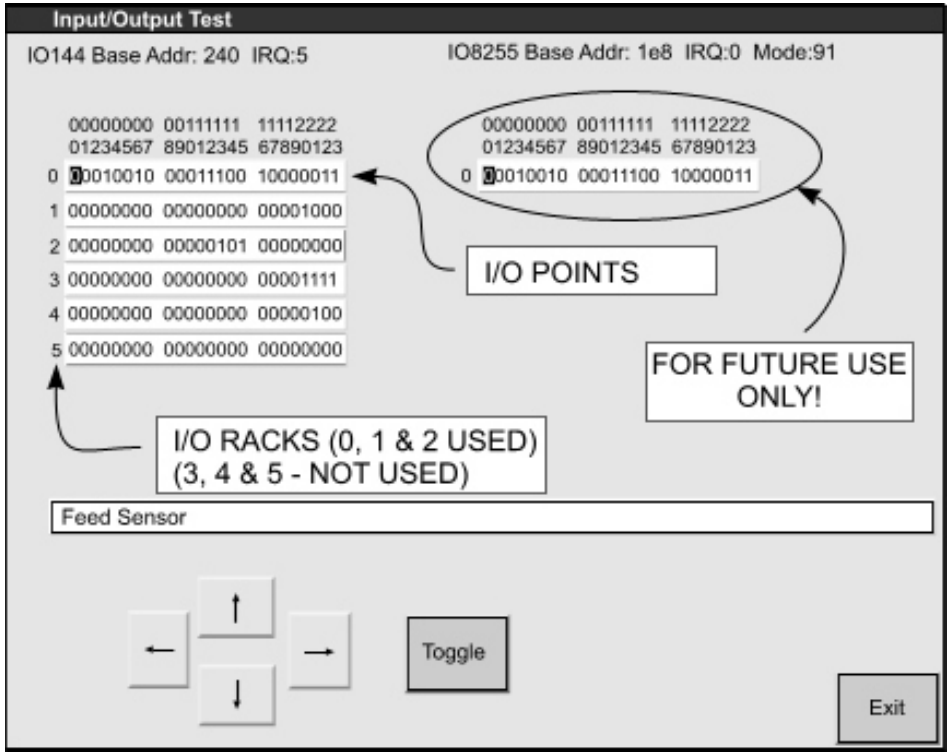
NOTE: The FEED and READ speeds must be within 5% of each other to ensure normal operational condition.

C.2 IO/144 BOARD (INPUTS AND OUTPUTS)

C.2a Orientation

Use this screen to test inputs and outputs:From the "Setup" Screen press "Test" and then on the "Test" screen press the "IO/144 Board" to display the below screen.

Use this screen to test inputs and outputs:



- From the "Setup" Screen press "Test" and then on the "Test" screen press the "IO/144 Board" to display the below screen.

To help understand the "Input/Output (I/O) Test" screen it needs a little introduction. We will concentrate on only the block of numbers on the left side of the screen. At the top there are two rows of numbers. The numbers in the top row are assigned interrupts for the Input & Output system hardware addresses in the second row.

More importantly the rows and columns of 0's and 1's indicate a particular point for all inputs and outputs on the machine. The rows of the main body are specific ports which relate to the machine's "Interconnect Board". The screen shows six ports 0 to 5. The machine only uses the top 0, 1 and 2. The physical Circuit board known as ports are also called "Opto Racks" on which input and output relay modules are installed in the machine. Each port (Opto Rack) has the capability for 24 input or output modules. Each row starting with 0 has 24 positions to the right and each position is either an input or output which can be toggled for purposes of testing.

We are only concerned with the left block of input and outputs on this screen as the right hand side is reserved for future use.

The point display line two/thirds of the way down the screen will announce the relay module ("device") that has been indicated by the cursor.

At the bottom of the screen there are arrows that will permit the cursor to be moved to a specific point and a "Toggle" button that will cause a change in the "Output" point from "on to off" or ‘off to on".

- Using the arrow keys move the cursor to the desired input or output using the “Port” and “Point” information from the I/O Reference tables following.
- The name of the output or input will be announced when the cursor is positioned on its "Port" and "Point" location block.
- Inputs will change state when sensors are blocked or an encoder is rotated.
- Use the “Toggle” button to toggle the outputs on and off. **(Interlocks must be closed and Master Relay output 1:3 (see table 1) must be toggled ON for this to function.)**

C.2b I/O Reference Tables 420T V6LT I/O Table 0

Rack	Opto	Type	Description
0	00	Input	Feed Sensor
0	01	Input	Accumulator Stack Sensor
0	02	Input	Feeder Speed Encoder
0	03	Input	Folder Speed Encoder
0	04	Input	Demand Switch
0	05	Input	Inserter Deg. Encoder
0	06	Output	Moistener Line 10
0	07	Input	Accumulator 2 Presence Sensor
0	08	Input	Start/Stop Switch
0	09	Input	Cycle Switch
0	10	Input	Dump Switch
0	11	Input	Interlock Sense
0	12	Input	Transfer Conv IN SNS
0	13	Input	Transfer Conv OUT SNS
0	14	Input	Inserter Home Encoder Signal
0	15	Input	Accumulator Stack 2 Sensor
0	16	Input	Double Detect Sensor
0	17	Input	Folder Exit Sensor
0	18	Input	Accumulator Presence Sensor
0	19	Input	Cutter Ready Signal
0	20	Output	Accumulator Dump Clutch
0	21	Output	Transfer Conv. Clutch
0	22	Output	Transfer Conv. Brake
0	23	Output	Accumulator Dump Brake

C.2c I/O Reference Tables 420 V6LT I/O Table 1

Rack	Opto	Type	Description
1	00	Output	Feed Clutch
1	01	Output	Folder Motor
1	02	Output	Feed Motor
1	03	Output	Master Relay
1	04	Output	Separation Sol 7 (inserter signal)
1	05	Output	Separation Sol 1 (inserter signal)
1	06	Output	Separation Sol 8 (inserter signal)
1	07	Output	Shingle Conveyor Motor
1	08	Output	Separation Sol 2 (inserter signal)
1	09	Output	Separation Sol 3 (inserter signal)
1	10	Output	Separation Sol 4 (inserter signal)
1	11	Output	Separation Sol 5 (inserter signal)
1	12	Output	Separation Sol 6 (inserter signal)
1	13	Output	Separation Sol Env (inserter signal)
1	14	Output	Ink Mark/Kicker Solenoid (inserter signal)
1	15	Output	Env Flap Sense Disable (inserter signal)
1	16	Output	Emergency Stop (Master Relay) (inserter signal)
1	17	Output	Insert Station 1 Error (inserter signal)
1	18	Output	External Feeder/Cutter Demand Out
1	19	Output	Postal Meter Divert (inserter signal)
1	20	Input	Paper Demand Wand
ri01	21	Input	Inserter Run Signal
1	22	Input	Cutter Jam Sensor
1	23	Input	Station 1 Sensor (Inserter)

C.2d I/O Reference Tables 420 V6LT I/O Table 2

Rack	Opto	Type	Description
2	00		IF 42 RA Conv Input Sensor
2	01		Not Used
2	02		Not Used
2	03		Collector Station 2 Clutch
2	04		Collector Station 2 Brake
2	05		Collector Station 2 Sense
2	06		Collector Station 3 Clutch
2	07		Collector Station 3 Brake
2	08		RR – IF42 Conv Motor Enable
2	09		Not Used
2	10		Not Used
2	11		Collector Station 3 Sense
2	12		Station 14
2	13	Output	Feeder Brake
2	14	Output	First Page Hold Brake
2	15	Output	First Page Hold Clutch
2	16	Input	Ink Mark/RA Conveyor Presence Sensor
2	17		RR - Creeper Motor Enable
2	18		Not Used
2	19		Station 13
2	20		Station 12
2	21		Station 11
2	22		Station 10
2	23		Station 9

C.3 GENERAL SOLUTIONS TO ERRORS

Many error codes are the result of jammed paper (physical errors), or paper expected at specific time and location (read errors: sequence, blank page, misprinted code, etc.).

The sensors index the number of sheets as they pass, incrementing a count on the CPU-186. If a corresponding decrement of count does not occur from the next sensor, a read error is generated. If error persists, consider failure of sensor or communication problem (poor connection, etc.).

For many read errors, check that setup parameters are correct before pursuing functional troubleshooting.

Read errors require a determination of the integrity of the pack. The operator must look at the readings on the display and manually verify each sheet.

When read errors occur, it indicates that the integrity of the package is in question. The 420T was not able to verify a page while stream feeding a package. When the operator is satisfied that the package is complete, press the DUMP key to release the package.

Once a reading error (BLANK or MISREAD) is declared, additional feeding via the CYCLE key will continue to display BLANK or MISREAD errors, but will not stop the machine.

Before powering up the 420T, the operator must remove any packages in the accumulator to be sure there will be no initial error conditions.

C.3a Solutions to Less Common Errors

A rare, but more difficult-to-find problem can occur with shorts in the 24VDC circuit. Intermittent failure of sensors (5VDC supply) can result from the 24VDC short. The short will only occur when a 24V component activates, dropping the 5V supply across the line. The 24V solenoid may be located some distance from the sensor which is the apparent problem: consider what is supposed to happen before or as the sensor is supposed to read.

If either the Feeder speed or Folder speed are approximately half of the other, an encoder channel is probably lost. (Check speeds through Test menu on display)

Any time a new CPU-186 board is installed, the presets must be reset, or there will be an error displayed.

If PWB errors occur (errors with PWB as probable source), pull the board and make sure that all board components are properly seated. Re-install the board and make sure it is properly seated.

If reader problems are recurring, re-calibrate with the calibration sheet. Feed the sheet through several times to ensure that the reader encoder is returning good data. If data is inconsistent, replace the reader encoder.

An “invalid calibration” error indicates that the calibration reading was more than 15% different from the expected (stored) result. See above

C.3b ERROR CODES

Each error is displayed using a combination of numbers that are coded to give the operator/maintenance personnel an idea of where to begin to look for the problem when an error occurs.

The error codes (five digits) are designed to be unique. The first three digits specify a machine area or module. The last two digits define the specific error relating to an event in some location which occurred during operation. This section also provides information that can help lead to the correction or removal of the error.

EVENT	The event or process being monitored by the machine.
EVENT CHECK	The device used (example: timer) to monitor the event.
ERROR ON	The reason an error is flagged.
CHECK VALUE	The value being used to flag the error. Some are calculated based on speed, sheet length, etc.
ADJUST VALUE	Where the check value can be adjusted.

Module Error Codes:

GENERAL	0
COMMON	10 // Common Messages
SYSTEM	11 // System Messages
FEEDER	12 // Feeder Messages
ACCUMULATOR	13 // Accumulator Messages
FOLDER	14 // Are used in Folder Messages
XFERCONVEYOR	15 // Are used in Xfer (transfer) Conveyor Messages
BARREADER	16 // Are used in Bar Reading Messages
INSERTER	17 // Are used in Inserter Messages
LINEREADER	18 // Are used in Line Reading Messages
ENGVALUE	19 // Are used in Eng (engineering) Value Messages
EXITCOMM	20 // Are used in COMMPORT3 Messages
INFEED	21 // Are used in InFeed Messages
ETHERNET	22 // ETHERNET Messages
NVFILESF	23 // NVFile(StringFile) Messages

Note: An “8” in the third digit position is the same as a “0”.

Example - “18**8**36” is the same as “18**0**36"

System Module: 110nn/8nn

11020	“Exit Demand Timeout”
11021	“Cover Interlock Open or Emergency Stop Set”
11022	“Cover Interlock Open or Emergency Stop Set”
11024	“Exit Sensor Blocked”
11025	“NOT READY”
11028	“Jam Out of Folder”
11029	“Max. No Stop Error Diverts”

Feeder Module: 120nn/8nn

12001 "Feeder; No Feed Error”

12020 “DOUBLE PAGE FED”

12021 "Below Minimum Speed"

12022 “LONG PAGE FED”

12023 “EXTRA PAGE WAS FED ”

12025 “FEED TO ACCUMULATOR JAM (TIME)”

12026 “SPEED LOW”

12027 (Deleted!)

12028 (Not Used!)

12029 (Not Used!)

Accumulator Module: 130nnn

13000 “Stack Error” (First Page Hold)

13001 "Accumulator; Misfeed Error”

13003 “Max Accu. Pages Exceeded - Remove Pack”

13004 “Package Size Exceeded”

13021 “Un-Expected Pack Present - Remove Pack”

13022 “Accumulator Presence Not Detected”

13024 “First Page Hold Slip”

13025 “First Page Hold UnFinished”

13027 “First Page Hold UnFinished”

13030 “Max Track Pages Exceeded - Remove Pack”

Folder Module: 140nn/8nn

14001 “Jam In Folder - Pack Not Seen At Folder Exit”

14002 “Jam At Folder Exit”

14020 “SPEED LOW”

14021 "Folder Exit Sensor Jam"

14022 "Below Minimum Speed"

Xcvyr Module: 150nn/8nn

15001 (Deleted!)

15002 “Jam At In Sensor Error:”

15003 “Jam At Out Sensor Error”

15004 “Jam Into Transfer Conveyor”

15005 “Un-Expected Pack Exited Xfer Conveyor”

15006 “Expected Pack Did Not Exit Xfer Cvyr”

15020 “Jam Into Xfer Cnvy Station 1"

15021 “Jam Out Of Xfer Cnvy Station 1"

15022 "Jam Into Xfer Station 2"

15023 "Jam Out Of Xfer Station 2"

15024 "Jam Into Xfer Station 3"

15025 "Jam Out Of Xfer Station 3"

15026 "Unkown Pack Sta 1 - Set Pack Bad"

15027 "Unknown Pack Sta 2 - Set Pack Bad"

15028 "Unknown Pace Sta 3 - Set Pack Bad"

15029 "Unknown Packs - Remove Packs"

15030 "Jam Out Of Folder, Into Collector Ramps"

15031 "Jam On Collector Input Ramps"

15032 "Jam Out Of Collector"

15036 "Missing Pack Sta 1 - Set Sta Emplty"

15037 "Missing Pack Sta 2 - Set Sta Empty"

15038 "Missing Pack Sta 3 - Set Sta Empty"

15039 "Unknown Packs - Remove Packs"

15040 "False Feed Into Xfer Station 1"

15041 "False feed Out Of Xfer Station 1"

15042 "False Feed Into Xfer Station 2"

15043 "False Feed Out of Xfer Station 2"

15044 "False Feed Into Xfer Station 3"

15045 "False Feed Out Of Station 3"

15046 "No Data From Sta 2 - Set Sta 4 Pack Bad"

15050 "No Data From Sta 1 - Set Sta 2 15057Pack Bad"

15051 "Data Oversrite Sta 2 - Set Sta 2 Pack Bad"

15052 "No Data From Sta 2 - Set Sta 3 Pack Bad"

15053 "Data Overwrite Sta 3 - Set Sta 3 Pack Bad"

15054 "No Data From Sta 3 - Set Sta 4 Pack Bad"

15055 "Data Overwrite Sta 4 - Set Sta 4 Pack Bad"

15056 "No Dat From Sta 1 - Set Sta 4 Pack Bad"

15057 "Data Overwrite Sta 4 - Set Sta 4 Pack Bad"

15058 "Data Overwrite Sta 2 - Set Sta 2 Pack Bad"

15059 "Data Overwrite Sta 1 - Set Sta 1 Pack Bad"

Bar Read Module: 160nn/8nn

16052 “READLESS READ ERROR ”

*See Reader Error List

Line Read Module: 180nn/8nn

*See Reader Error List

Xcomm Module: 200nn/8nn

20001 “No Message Response”

Infeed Module: 210nn/8nn

21001 “Paper Demand Timeout”

21002 “810 Right Angle Paper Jam - Clear Jam”

21003 “810-RA or IF-42 Cover Open - Close Cover”

21004 “IF-42 Conveyor Input Paper Jam - Clear Jam”

21005 “IF-42 Conveyor Output Paper Jam - Clear Jam”

21006 “810 Right Angle Not Ready - Check Power”

21007 “IF-42 Conveyor In/Out Paper Jam - Clear Jam”

21008 “Printer Response Timeout - Nothing Received”

21015 “Cutter Output Feed Timeout”

21016 “Cutter Interface Output Sense Timeout”

21017 “Cutter Interface Count Exceeded”

21019 “Cutter Interface Input Sense Jam”

21020 “Cutter Interface Output Sense Jam”

21021 “Cutter Output Feed Timeout”

21022 “Cutter Interface Input Sense Jam”

Ethernet Module: 220/8nn

220XX "ETHERNET Messages"

NVFile (StringFile) Module: 230/8nn

230XX "NVFile (StringFile) Messages"

C.3c (11xxx) System

Error **Description**

11020 "Exit Demand Timeout"

When a package in the accumulator does not leave the accumulator within a given time this error will be displayed.

EVENT: Accum. Package Ready to Exit Demand

EVENT CHECK: ExitDemandTimer

CHECK VALUE: 60 sec.

ADJUST VALUE: Engin. Value 21

ANALYSIS: Time exceeded

11021 "Cover Interlock Open or Emergency Stop Set

EVENT: Interlock OPEN

EVENT CHECK: Interlock

CHECK VALUE: —

ADJUST VALUE: —

ANALYSIS: Interlock OPEN at power ON

11022 "Cover Interlock Open or Emergency Stop Set"

EVENT: Interlock ON

EVENT CHECK: Interlock

CHECK VALUE: —

ADJUST VALUE: —

ANALYSIS: Interlock ON at machine powered

11024 "Exit Sensor Error"

EVENT: Exit Demand

EVENT CHECK: Exit Demand and Exit Sense, Inserter Station 1 Sense

CHECK VALUE: —

ADJUST VALUE: —

ANALYSIS: Inserter Station 1 Sense covered for 6 demands. Sensor blocked

11025 "NOT READY"

11028 "Jam Out of Folder"

11029 "Max. No Stop Error Diverts"

C.3d (12xxx) Feeder

Error **Description**

12001 "No Feed Error"

WHAT HAPPENED

A page was not seen at the Feed Sensor within 500 msec when the Feeder is processing.

A feed cycle of three trys is taken.

ACTION TO TAKE

Adjust the Feed singulator properly.

Adjust the loading of paper into the Feed singulator properly.

ANY OTHER ADJUSTMENTS

In Test-IO144 look for transitions of the Feeder Sensor Input 0 to 1 as the lead edge of the paper is manually fed through the Feed Sensor.

12020 "DOUBLE PAGE FED"

WHAT HAPPENED

The Double Page sensor sensed more than one page as it was fed throught the sensor.

For an optical sensor: The sensing light beam goes through one page but not two or more pages.

For an ultrasonic sensor: The ultrasonic beam senses an air gap between two or more pages.

ACTION TO TAKE

Adjust the Feed singulator properly. Only one sheet should be fed.

Check the Double Page sensor adjustment.

For an optical sensor: Adjust the amplifier so the sensing light beam goes through one page but not two or more pages.

The optical sensor is sensitive to print and marking on the page.

Adjust Engin. Value 33 Number of Double Detect Sample Counts to take 2 or 3 or more checks before flagging an error.

For an ultrasonic sensor: Verify the correct spacing between the two sensor heads.

The ultrasonic sensor is NOT sensitive to print and marking on the page.

Adjust Eng. Value 33 Number of Double Detect Sample Counts to 1 check before flagging an error.

ANY OTHER ADJUSTMENTS

12021 "Below Minimum Speed"

WHAT HAPPENED

At power transition on, average Feeder Speed did not reach and settle at a speed over 60 inches per second.

ACTION TO TAKE

Did the motor start?

No?

Check the motor, motor controller, and the connections and wiring to these.

Yes.

Check the 'blue dart' feeder speed encoder and its connections.

In Test-IO144 look for transitions on the Feeder Speed Encoder Input as the Feeder take away shaft is turned by hand.

ANY OTHER ADJUSTMENTS

Turn up the Feeder Speed dial.

Check the motor controller setups.

12022 "LONG PAGE FED"

WHAT HAPPENED

The lead edge of a page fed was seen at the Feed Sensor, but the trail edge was not seen within a time.

The time used is calculated based on the feeder speed and length of the sheet set in System Setup.

ACTION TO TAKE

Adjust the Feed singulator properly. The sheet should not be held back by the singulator.

Adjust Engin. Value 35, Feed Control Brake Delay Time higher. The sheet should not be held back by the singulator.

Check Feeder Setup, Pulse Feed is set to Read. This cycles the Feeder clutch and brake on every page fed and forces a gap between sheets.

Check the Feed Sensor adjustment.

ANY OTHER ADJUSTMENTS

12023 "EXTRA PAGE WAS FED"

WHAT HAPPENED

The Feeder was not processing a page feed, did not expect a page fed and sensed a page fed at the Feeder Sensor.

ACTION TO TAKE

Is a page under the Feeder Sensor?

Yes.

Adjust the Feed singulator properly.

Check Feeder Setup, Pulse Feed is set to Read. This cycles the Feeder clutch and brake on every page fed and forces a gap between sheets.

Lower the Feeder Brake On Delay Time, Eng. Value 35, to turn on the brake faster. 20 to 80 is normal.

No.

Check the Feed Sensor adjustment for false signals, too much gain sensing printing.

Clean the Feed Sensor reflector. Move the Feed Sensor 'beam' away from shiney metal.

ANY OTHER ADJUSTMENTS

12025 "FEED TO ACCUMULATOR JAM (TIME)"

WHAT HAPPENED

A page fed through the Feed Sensor was not seen at the Accumulator Stack Sensor within the set Feed To Accum. Time.

This process accounts for one or more pages in transit between the Feed Sensor and the Accumulator Stack Sensor.

ACTION TO TAKE

Adjust the Feed singulator properly.

Check Feeder Setup, Pulse Feed is set to Read. This cycles the Feeder clutch and brake on every page fed.

Increase the Feed To Accum. Time, Engin. Value 24, to allow more time. 250 to 300 is normal.

ANY OTHER ADJUSTMENTS

In Test-IO144 look for transitions of the Feeder Sensor Input and the Accumulator Stack Sensor, 0 to 1 as the paper is manually fed through.

12026 "SPEED LOW"

WHAT HAPPENED

At power On and/or cycling, the average Feeder Speed is less than 25 inches per second.

ACTION TO TAKE

Did the motor start?

No.

Check the motor, motor controller, and the connections and wiring to these.

Yes.

Check the 'blue dart' feeder speed encoder and its connections.

Go to Test-IO144 and look for transitions on the Feeder Speed Encoder Input as the Feeder take away shaft is turned by hand.

ANY OTHER ADJUSTMENTS

Turn up the Feeder Speed dial.

Check the motor controller setups.

C.3e (13xxx) Accumulator

Error **Description**

13000 "Stack Error"

WHAT HAPPENED

A sheet entering the Accumulator, has not entered the accumulator ramp sensor/accumulator stack sensor and left within 500 msec.

ACTION TO TAKE

Check for any obstruction along the paper path at the entrance to the accumulator.

Check setup and adjustment of the accumulator ramp sensor sensor.

ANY ADJUSTMENTS - None.

13001 "Misfeed Error"

WHAT HAPPENED

When dumping the Accumulator, the pack leaving the accumulator is not sensed within a No Dump timeout by the accumulator sensor/accumulator presence sensor.

ACTION TO TAKE

Check for the correct Accumulator Dump Clutch On Time, Engin Value 14.

Check operation of the accumulator clutch and brake in the Test IO144 screen.

Check setup and adjustment of the accumulator sensor/accumulator presence sensor.

ANY ADJUSTMENTS - None. The No Dump time is calculated based on the length of the sheet entered in System Setup and the speed of the accumulator.

13003 "Max Accu. Pages Exceeded - Remove Pack"

WHAT HAPPENED

The count of the pages entering the accumulator at the accumulator ramp sensor/accumulator stack sensor exceed Maximum Accumulator Pages.

ACTION TO TAKE

The pack must be removed from the accumulator, from under the accumulator sensor to proceed with operation.

ANY ADJUSTMENTS - Maximum Accumulator Pages can be adjusted in the Accumulator Setup Screen. This value can be adjusted to 14 for a Normal accumulator and to 99 for a Flats accumulator.

13004 "Package Size Exceeded"

WHAT HAPPENED

In No Read, Fixed Page Count, the count of sheets entering the accumulator at the accumulator ramp sensor/accumulator stack sensor has exceeded the Package Size entered in System Setup.

ACTION TO TAKE

The pack must be inspected or removed from the accumulator.

ANY ADJUSTMENTS

Check that Feeder Setup Double Detect is On.

Check the operation of the Double Detect sensor.

Check the setup of the Optical Double Detect sensor.

Check the Max Double Detect Count Engin Value 33.

-This should be 1 for an Ultrasonic Double Detect sensor.

-For an Optical Double Detect sensor, this should be set to a minimum that disallows false detection through printed sheets.

13021 "Un-Expected Pack Present - Remove Pack"

WHAT HAPPENED

The machine was powered up with a pack in the accumulator being sensed by the accumulator sensor/accumulator presence sensor.

ACTION TO TAKE

The pack must be removed from the accumulator, from under the accumulator sensor to proceed with operation.

ANY ADJUSTMENTS - None.

13022 "Accumulator Presence Not Detected"

WHAT HAPPENED

After a page has cleared the accumulator stack sensor the accumulator sensor is checked to make sure the page has come to rest in the accumulator. If the page or pages is not detected this error is raised.

ACTION TO TAKE

Did the page or pack in the accumulator stop at the correct position in the accumulator?

ANY ADJUSTMENTS

Check the adjustment of the ramp bars.

Check the position of the accumulator sensor which should be sensing the pages in the accumulator.

Check the setup of the accumulator sensor.

13024 "First Page Hold Slip"

WHAT HAPPENED

A sheet is sensed leaving the accumulator ramp sensor/accumulator stack sensor when the First Page Hold has been set to 'hold' the page there.

ACTION TO TAKE

The pack must be inspected or removed from the accumulator.

ANY ADJUSTMENTS

Adjust the Accumulator Setup FPH Point down to stop the page faster.

Check operation of the accumulator FPH clutch and brake in the Test IO144 screen.

Check the setup of the accumulator ramp sensor/accumulator stack sensor.

13025 "First Page Hold UnFinished"

13027 "First Page Hold UnFinished"

WHAT HAPPENED

After the Accumulator dump time, a sheet is not sensed entering the accumulator ramp sensor/accumulator stack sensor to go to the Accumulator.

Or,

After the Accumulator dump time, a sheet is not sensed entering the accumulator ramp sensor/accumulator stack sensor when the First Page Hold has been set to 'hold' the page there.

The next pages from the Feeder are coming very slowly or not at all.

ACTION TO TAKE

The pack must be inspected or removed from the accumulator.

ANY ADJUSTMENTS

Check operation of the Feeder singulator.

Check operation of the Feeder clutch and brake in the Test IO144 screen.

13030 "Max Track Pages Exceeded - Remove Pack"

WHAT HAPPENED

When operating as a Flat Pack Feeder, the count of the pages entering the accumulator at the accumulator ramp sensor/accumulator stack

sensor plus the current number of pages collected in the inserter track section would exceed the maximum number of pages that can be collected in the inserter track.

ACTION TO TAKE

The pack must be removed from the accumulator, from under the accumulator sensor to proceed with operation.

ANY ADJUSTMENTS

Flat Pack Maximum Accumulator Pages can be adjusted in the Accumulator Setup Screen. Flat Pack Maximum Track Pages can be adjusted with Engin. Values 42. This value can be adjusted to 14 for a Normal accumulator and to 99 for a Flats accumulator.

C.3f (14xxx) Folder

Error **Description**

14001 "Jam In Folder - Pack Not Seen At Folder Exit"

HARDWARE: Accum Type=Flats, System Exit Device=Conveyor, System Exit Device=Xfer,Xfer XcvyN=ON.

WHAT HAPPENED

Cycling, a pack was not sensed at the Folder Exit Sensor within a time.

ACTION TO TAKE

Check for a jam in the Folder.

Test the Folder Exit Sensor.

ANY OTHER ADJUSTMENTS

Adjust Engin Value#4 Folder Exit Time.

14002 "Jam At Folder Exit"

HARDWARE: Accum Type=Flats, System Exit Device=Conveyor, System Exit Device=Xfer,Xfer XcvyN=ON.

WHAT HAPPENED

Cycling, a count of packs entering the folder minus the number exitng exceeding 2 packs.

ACTION TO TAKE

Check for a jam in the Folder.

Test the Folder Exit Sensor.

ANY OTHER ADJUSTMENTS

14020 "SPEED LOW"

HARDWARE: All except Flats.

WHAT HAPPENED

At Power On, the average Folder Speed is less than 25 inches per second.

ACTION TO TAKE

Did the folder motor start?

No.

Check the motor, motor controller, and the connections and wiring to these.

Yes.

Check the 'blue dart' folder speed encoder and its connections.

Go to Test-IO144 and look for transitions on the Folder Speed Encoder Input as the Folder take away shaft is turned by hand.

ANY OTHER ADJUSTMENTS

Turn up the Folder Speed dial.

Check the motor controller setups.

14021 "Folder Exit Sensor Jam"

HARDWARE: Accum Type=Flats, System Exit Device=Conveyor, System Exit Device=Xfer,Xfer XcvyN=ON.

WHAT HAPPENED

Cycling, a pack is sensed at the Folder Exit Sensor for too long a time(240msec).

ACTION TO TAKE

Check for a jam at the Folder.Exit Sensor

Test the Folder Exit Sensor.

ANY OTHER ADJUSTMENTS

14022 "Below Minimum Speed"

HARDWARE: All except Flats.

WHAT HAPPENED

At power transition on, average Folder Speed did not reach and settle at a speed over 50 inches per second.

ACTION TO TAKE

Did the motor start?

No.

Check the motor, motor controller, and the connections and wiring to these.

Yes.

Check the 'blue dart' Folder speed encoder and its connections.

In Test-IO144 look for transitions on the Folder Speed Encoder Input as the Folder take away shaft is truned by hand.

ANY OTHER ADJUSTMENTS

Turn up the Folder Speed dial.

Check the motor controller setups.

C.3g (15xxx) Xfer Conveyor (Xfer Cvyr, Xcvy)

Error **Description**

15001 "Jam Error"

EVENT: Pack at Xcvy Sta. 1/In Sensor, increment. Pack at Xcvy Out Sensor, decrement.

EVENT CHECK: PackageCounter.

ERROR ON: > 5.

CHECK VALUE: 5.

ADJUST VALUE: Engin. Value 18

15002 "Jam At In Sensor Error"

HARDWARE: Original Xfer Conveyor

WHAT HAPPENED

Cycling, a pack did not move from the Folder to the Xfer Conveyor within a time.

ACTION TO TAKE

Check for a jam in the Folder.

Check for a jam at the Xfer Conveyor.

Test the Xfer Conveyor In Sensor at the Xfer Conveyor Station 1.

ANY OTHER ADJUSTMENTS

Adjust Engin Value #23 Xcvy Jam At In time.

15003 "Jam At Out Sensor Error"

HARDWARE: Original Xfer Conveyor

WHAT HAPPENED

Cycling, a pack did not leave the Xfer Conveyor Out Sensor within a time.

ACTION TO TAKE

Check for a jam at the Xfer Conveyor Exit.

Test the Xfer Conveyor Out Sensor at the Xfer Conveyor Exit.

Test the Xfer Conveyor Clutch/Brake.

ANY OTHER ADJUSTMENTS

Adjust Engin Value#22 Xcvy Jam At Out Time.

15004 "Jam Into Transfer Conveyor"

HARDWARE: Original Xfer Conveyor

WHAT HAPPENED

Cycling, the count of packs into the Xfer Conveyor minus the packs out exceeds 3.

ACTION TO TAKE

Check for a jam at the Xfer Conveyor.

Test the Xfer Conveyor In Sensor and Xfer Conveyor Out Sensor.

ANY OTHER ADJUSTMENTS

Adjust Engin Value#13 Xcvy Package In Out Count. Set to 0 to disable

15005 "Un-expected Pack Exited Xfer Conveyor"

HARDWARE: Original Xfer Conveyor

WHAT HAPPENED

Cycling, a pack was sensed at the xfer conveyor exit with no data associated with it

ACTION TO TAKE

For Inserter Open Feed - Check the Inserter Station 1/In Track Sensor.

For Inserter Gripper - Check the Xfer Conveyor Out Sensor.

Check Xfer Conveyor and Inserter setups.

ANY OTHER ADJUSTMENTS

Adjust Engin Value#7 Xcvy Clutch On Time to place 3 packs evenly in the Original Xfer Conveyor.

—The last pack should be about 1 inch from the exit rollers.

If packs are pulled from the Original Xfer Conveyor data remains because there are no sensors at Stations 2 and 3.

—Power Down, clear Accumulator and Xfer Conveyor. Power Up and re-load Accumulator and Xfer Conveyor.

15006 "Expected Pack Did Not Exit Xfer Cvyr"

HARDWARE: Original Xfer Conveyor

WHAT HAPPENED

Cycling, the Xfer Conveyor was cycled and no pack was sensed but data indicated an expected pack.

ACTION TO TAKE

Check for a jam at the Xfer Conveyor.

For Inserter Open Feed - Check the Inserter Station 1/In Track Sensor.

For Inserter Gripper - Check the Xfer Conveyor Out Sensor.

Test the Xfer Conveyor In Sensor at the Xfer Conveyor.

ANY OTHER ADJUSTMENTS

Adjust Engin Value#7 Xcvy Clutch On Time to place 3 packs evenly in the Original Xfer Conveyor.

—The last pack should be about 1 inch from the exit rollers.

If packs are pulled from the Original Xfer Conveyor data remains because there are no sensors at Stations 2 and 3.

—Power Down, clear Accumulator and Xfer Conveyor. Power Up and re-load Accumulator and Xfer Conveyor.

15020 "Jam Into Xfer Cnvy Station 1"

HARDWARE: Original Xfer Conveyor

15020 "Jam Into Xfer Station 1"

HARDWARE: New Xfer Conveyor, Bridge and Two Stage

WHAT HAPPENED

Cycling, a pack did not reach Xfer Station 1 within a time.

ACTION TO TAKE

Check for a jam in the Folder.

Test the sensor at Station 1.

Test the clutch and brake at the Accumulator.

ANY OTHER ADJUSTMENTS

Adjust Engin Value#8 XcvyN Into Sta time.

This pack was marked bad.

Was there an Xfer Conveyor error in the previous cycle?

Remove and inspect this pack and other suspect packs or allow the pack to be diverted for inspection downstream.

Set Engin. Value#55 to 1 to set all packs in the Xfer Conveyor bad.

The following device, maybe an Inserter, may have provision to divert bad packs for inspection.

15021 "Jam Out Of Xfer Cnvy Station 1"

HARDWARE: Original Xfer Conveyor

15021 "Jam Out Of Xfer Station 1"

HARDWARE: New Xfer Conveyor, Bridge and Two Stage

WHAT HAPPENED

Cycling, a pack did not leave Xfer Station 1 within a time.

ACTION TO TAKE

Check for a jam in the Xfer Station 1.

Test the sensor at Xfer Station 1.

Test the clutch and brake at the Xfer Station 1.

ANY OTHER ADJUSTMENTS

Adjust Engin Value#9 XcvyN OutOf Sta time.

This pack was marked bad.

Was there an Xfer Conveyor error in the previous cycle?

Remove and inspect this pack and other suspect packs or allow the pack to be diverted for inspection downstream.

Set Engin. Value#55 to 1 to set all packs in the Xfer Conveyor bad.

The following device, maybe an Inserter, may have provision to divert bad packs for inspection.

15022 “Jam into Xfer Station 2”

HARDWARE: New Xfer Conveyor, Bridge and Two Stage

15022 “Jam Into Xfer Station 2"

WHAT HAPPENED

Cycling, a pack did not reach Xfer Station 2 within a time.

ACTION TO TAKE

Check for a jam in the Xfer Station 1 or 2.

Test the sensor at Station 2.

Test the clutch and brake at Station 1.

ANY OTHER ADJUSTMENTS

Adjust Engin Value#8 XcvyN Into Sta time.

This pack was marked bad.

Was there an Xfer Conveyor error in the previous cycle?

Remove and inspect this pack and other suspect packs or allow the pack to be diverted for inspection downstream.

Set Engin. Value#55 to 1 to set all packs in the Xfer Conveyor bad.

The following device, maybe an Inserter, may have provision to divert bad packs for inspection.

15023 “Jam out of Xfer Station 2”

HARDWARE: New Xfer Conveyor, Bridge and Two Stage

15023 “Jam Out Of Xfer Station 2"

WHAT HAPPENED

Cycling, a pack did not leave Xfer Station 2 within a time.

ACTION TO TAKE

Check for a jam in the Station 2.

Test the sensor at Station 2.

Test the clutch and brake at the Station 2.

ANY OTHER ADJUSTMENTS

Adjust Engin Value#9 XcvyN OutOf Sta time.

This pack was marked bad.

Was there an Xfer Conveyor error in the previous cycle?

Remove and inspect this pack and other suspect packs or allow the pack to be diverted for inspection downstream.

Set Engin. Value#55 to 1 to set all packs in the Xfer Conveyor bad.

The following device, maybe an Inserter, may have provision to divert bad packs for inspection.

15024 “Jam into Xfer Station 3”

HARDWARE: New Xfer Conveyor, Bridge and Two Stage

WHAT HAPPENED

Cycling, a pack did not reach Xfer Station 3 within a time.

ACTION TO TAKE

Check for a jam in the Xfer Station 2 or 3.

Test the sensor at Station 3.

Test the clutch and brake at Station 2.

ANY OTHER ADJUSTMENTS

Adjust Engin Value#8 XcvyN Into Sta time.

This pack was marked bad.

Was there an Xfer Conveyor error in the previous cycle?

Remove and inspect this pack and other suspect packs or allow the pack to be diverted for inspection downstream.

Set Engin. Value#55 to 1 to set all packs in the Xfer Conveyor bad.

The following device, maybe an Inserter, may have provision to divert bad packs for inspection.

15025 "Jam out of Xfer Station 3"

HARDWARE: New Xfer Conveyor, Bridge and Two Stage

WHAT HAPPENED

Cycling, a pack did not leave Xfer Station 3 within a time.

ACTION TO TAKE

Check for a jam in the Station 3.

Test the sensor at Station 3.

Test the clutch and brake at the Station 3.

ANY OTHER ADJUSTMENTS

Adjust Engin Value#9 XcvyN OutOf Sta time.

This pack was marked bad.

Was there an Xfer Conveyor error in the previous cycle?

Remove and inspect this pack and other suspect packs or allow the pack to be diverted for inspection downstream.

Set Engin. Value#55 to 1 to set all packs in the Xfer Conveyor bad.

The following device, maybe an Inserter, may have provision to divert bad packs for inspection.

15026 "Unknown Pack Sta 1 – Set Pack Bad"

HARDWARE: New Xfer Conveyor, Bridge and Two Stage

WHAT HAPPENED

At Power On, Motors On, an unexpected pack was sensed in Xfer Station 1.

ACTION TO TAKE

Test the sensor at Station 1.

Test the clutch and brake at Station 1.

ANY OTHER ADJUSTMENTS

This pack was marked bad.

Was there an Xfer Conveyor error in the previous cycle?

Remove and inspect this pack and other suspect packs or allow the pack to be diverted for inspection downstream.

Set Engin. Value#55 to 1 to set all packs in the Xfer Conveyor bad.

The following device, maybe an Inserter, may have provision to divert bad packs for inspection.

15027 "Unknown Pack Sta 2 – Set Pack Bad"

HARDWARE: New Xfer Conveyor, Bridge and Two Stage

WHAT HAPPENED

At Power On, Motors On, an unexpected pack was sensed in Xfer Station 2.

ACTION TO TAKE

Test the sensor at Station 2.

Test the clutch and brake at Station 2.

ANY OTHER ADJUSTMENTS

This pack was marked bad.

Was there an Xfer Conveyor error in the previous cycle?

Remove and inspect this pack and other suspect packs or allow the pack to be diverted for inspection downstream.

Set Engin. Value#55 to 1 to set all packs in the Xfer Conveyor bad.

The following device, maybe an Inserter, may have provision to divert bad packs for inspection.

15028 "Unknown Pack Sta 3 – Set Pack Bad"

HARDWARE: New Xfer Conveyor, Bridge and Two Stage

WHAT HAPPENED

At Power On, Motors On, an unexpected pack was sensed in Xfer Station 3.

ACTION TO TAKE

Test the sensor at Station 3.

Test the clutch and brake at Station 3.

ANY OTHER ADJUSTMENTS

This pack was marked bad.

Was there an Xfer Conveyor error in the previous cycle?

Remove and inspect this pack and other suspect packs or allow the pack to be diverted for inspection downstream.

Set Engin. Value#55 to 1 to set all packs in the Xfer Conveyor bad.

The following device, maybe an Inserter, may have provision to divert bad packs for inspection.

15029 "Unknown Packs – Remove Packs"

HARDWARE: New Xfer Conveyor, Bridge and Two Stage

WHAT HAPPENED

At Power Up Machine, packs are unexpectedly sensed in 1 or more Xfer Stations.

ACTION TO TAKE

Pull all the packs from the Xfer Stations to proceed.

ANY OTHER ADJUSTMENTS

15030 "Jam Out of Folder, Into Collector Ramps"

HARDWARE: Collector

WHAT HAPPENED

Cycling, a pack did not leave the Folder and reach the Collector within a time.

ACTION TO TAKE

Check for a jam in the Folder.

Test the sensor at the Collector Ramps. Folder Exit Sensor(I/O 0:17), Transfer Conveyor In Sensor(I/O 0:12)

ANY OTHER ADJUSTMENTS

Adjust Engin Value#8 XcvyN Into Sta time.

15031 "Jam On Collector Input Ramps"

HARDWARE: Collector

WHAT HAPPENED

Cycling, a pack did not clear the Collector Input Ramps within a time.

ACTION TO TAKE

Check for a jam at the Collector.

Test the sensor at the Collector. Folder Exit Sensor(I/O 0:17)

ANY OTHER ADJUSTMENTS

Adjust Engin Value#23 Xcvy Jam At In Time.

15032 "Jam Out Of Collector"

HARDWARE: Collector

WHAT HAPPENED

Cycling, a pack did not leave the Collector within a time.

ACTION TO TAKE

Check for a jam at the Collector.

Test the the operation of the dump rollers at the Collector. Transfer Conveyor Clutch(I/O 0:21)

Test the sensor at the Collector. Transfer Conveyor In Sensor(I/O 0:12)

ANY OTHER ADJUSTMENTS

Adjust Engin Value#9 XcvyN OutOf Sta time.

Adjust Engin Value#nn dump rollers at the Collectortime.

15036 "Missing Pack Sta 1 – Set Sta Empty"

HARDWARE: New Xfer Conveyor, Bridge and Two Stage

WHAT HAPPENED

At Power On, Motors On, a pack was not sensed as expected at Xfer Station 1.

ACTION TO TAKE

Test the sensor at Station 1.

Test the clutch and brake at Station 1.

ANY OTHER ADJUSTMENTS

This pack was marked bad.

Was there an Xfer Conveyor error in the previous cycle?

Remove and inspect this pack and other suspect packs or allow the pack to be diverted for inspection downstream.

Set Engin. Value#55 to 1 to set all packs in the Xfer Conveyor bad.

The following device, maybe an Inserter, may have provision to divert bad packs for inspection.

15037 "Missing Pack Sta 2 – Set Sta Empty"

HARDWARE: New Xfer Conveyor, Bridge and Two Stage

WHAT HAPPENED

At Power On, Motors On, a pack was not sensed as expected at Xfer Station 2.

ACTION TO TAKE

Test the sensor at Station 2.

Test the clutch and brake at Station 2.

ANY OTHER ADJUSTMENTS

This pack was marked bad.

Was there an Xfer Conveyor error in the previous cycle?

Remove and inspect this pack and other suspect packs or allow the pack to be diverted for inspection downstream.

Set Engin. Value#55 to 1 to set all packs in the Xfer Conveyor bad.

The following device, maybe an Inserter, may have provision to divert bad packs for inspection.

15038 "Missing Pack Sta 3 – Set Sta Empty"

HARDWARE: New Xfer Conveyor, Bridge and Two Stage

WHAT HAPPENED

At Power On, Motors On, a pack was not sensed as expected at Xfer Station 3.

ACTION TO TAKE

Test the sensor at Station 3.

Test the clutch and brake at Station 3.

ANY OTHER ADJUSTMENTS

This pack was marked bad.

Was there an Xfer Conveyor error in the previous cycle?

Remove and inspect this pack and other suspect packs or allow the pack to be diverted for inspection downstream.

Set Engin. Value#55 to 1 to set all packs in the Xfer Conveyor bad.

The following device, maybe an Inserter, may have provision to divert bad packs for inspection.

15039 "Unknown Packs – Remove Packs"

HARDWARE: New Xfer Conveyor, Bridge and Two Stage

WHAT HAPPENED

At Power Up Machine, packs are unexpectedly sensed in 1 or more Xfer Stations.

ACTION TO TAKE

Pull all the packs from the Xfer Stations to proceed.

ANY OTHER ADJUSTMENTS

15040 "False Feed Into Xfer Station 1"

HARDWARE: New Xfer Conveyor, Bridge and Two Stage

WHAT HAPPENED

Cycling, an unexpected pack was sensed at Xfer Station 1.

ACTION TO TAKE

Did the pack at the previous station, the Accumulator, stop there?

Test the sensor at Station 1.

Test the sensor at the previous station, the Accumulator.

Test the clutch and brake at the Accumulator and Station 1.

ANY OTHER ADJUSTMENTS

This pack was marked bad.

Was there an Xfer Conveyor error in the previous cycle?

Remove and inspect this pack and other suspect packs or allow the pack to be diverted for inspection downstream.

Set Engin. Value#55 to 1 to set all packs in the Xfer Conveyor bad.

The following device, maybe an Inserter, may have provision to divert bad packs for inspection.

15041 "False Feed Out Of Xfer Station 1"

HARDWARE: New Xfer Conveyor, Bridge and Two Stage

WHAT HAPPENED

Cycling, the pack at Xfer Station 1 was sensed unexpectedly leaving.

ACTION TO TAKE

Test the sensor at Station 1.

Test the clutch and brake at Station 1.

ANY OTHER ADJUSTMENTS

Did this pack stop under the Station Sensor? Adjust sensor, turn Xfer Conveyor speed down, check Xfer Conveyor brakes.

This pack was marked bad.

Was there an Xfer Conveyor error in the previous cycle?

Remove and inspect this pack and other suspect packs or allow the pack to be diverted for inspection downstream.

Set Engin. Value#55 to 1 to set all packs in the Xfer Conveyor bad.

The following device, maybe an Inserter, may have provision to divert bad packs for inspection.

15042 "False Feed Into Xfer Station 2”

HARDWARE: New Xfer Conveyor, Type 4, Flats to Two Stage

WHAT HAPPENED

Cycling, an unexpected pack was sensed at Xfer Station 2.

ACTION TO TAKE

Did the pack at the previous station, Flats, stop there?

Test the sensor at Station 2.

Test the sensor at the previous station, Flats.

Test the clutch and brake at the Flats.

ANY OTHER ADJUSTMENTS

This pack was marked bad.

Was there an Xfer Conveyor error in the previous cycle?

Remove and inspect this pack and other suspect packs or allow the pack to be diverted for inspection downstream.

Set Engin. Value#55 to 1 to set all packs in the Xfer Conveyor bad.

The following device, maybe an Inserter, may have provision to divert bad packs for inspection.

15042 “False Feed Into Xfer Station 2"

HARDWARE: New Xfer Conveyor, Bridge and Two Stage

WHAT HAPPENED

Cycling, an unexpected pack was sensed at Xfer Station 2.

ACTION TO TAKE

Did the pack at the previous station, Station 1, stop there?

Test the sensor at Station 2.

Test the sensor at the previous station, Station 1.

Test the clutch and brake at Station 1.

ANY OTHER ADJUSTMENTS

This pack was marked bad.

Was there an Xfer Conveyor error in the previous cycle?

Remove and inspect this pack and other suspect packs or allow the pack to be diverted for inspection downstream.

Set Engin. Value#55 to 1 to set all packs in the Xfer Conveyor bad.

The following device, maybe an Inserter, may have provision to divert bad packs for inspection.

15043 “False Feed Out Of Xfer Station 2”

HARDWARE: New Xfer Conveyor, Bridge and Two Stage

15043 “False Feed Out Of Xfer Station 2"

WHAT HAPPENED

Cycling, the pack at Xfer Station 2 was sensed unexpectedly leaving.

ACTION TO TAKE

Test the sensor at Station 2.

Test the clutch and brake at Station 2.

ANY OTHER ADJUSTMENTS

Did this pack stop under the Station Sensor? Adjust sensor, turn Xfer Conveyor speed down, check Xfer Conveyor brakes.

This pack was marked bad.

Was there an Xfer Conveyor error in the previous cycle?

Remove and inspect this pack and other suspect packs or allow the pack to be diverted for inspection downstream.

Set Engin. Value#55 to 1 to set all packs in the Xfer Conveyor bad.

The following device, maybe an Inserter, may have provision to divert bad packs for inspection.

15044 "False Feed Into Xfer Station 3"

HARDWARE: New Xfer Conveyor, Bridge and Two Stage

WHAT HAPPENED

Cycling, an unexpected pack was sensed at Xfer Station 3.

ACTION TO TAKE

Did the pack at the previous Station 2 stop there?

Test the sensor at Station 3.

Test the sensor at the previous station Station 2.

Test the clutch and brake at Station 2

ANY OTHER ADJUSTMENTS

This pack was marked bad.

Was there an Xfer Conveyor error in the previous cycle?

Remove and inspect this pack and other suspect packs or allow the pack to be diverted for inspection downstream.

Set Engin. Value#55 to 1 to set all packs in the Xfer Conveyor bad.

The following device, maybe an Inserter, may have provision to divert bad packs for inspection.

15045 "False Feed Out Of Xfer Station 3"

HARDWARE: New Xfer Conveyor, Bridge and Two Stage

WHAT HAPPENED

Cycling, the pack at Xfer Station 3 was sensed unexpectedly leaving.

ACTION TO TAKE

Test the sensor at Station 3.

Test the clutch and brake at Station 3.

ANY OTHER ADJUSTMENTS

This pack was marked bad.

Was there an Xfer Conveyor error in the previous cycle?

Remove and inspect this pack and other suspect packs or allow the pack to be diverted for inspection downstream.

Set Engin. Value#55 to 1 to set all packs in the Xfer Conveyor bad.

The following device, maybe an Inserter, may have provision to divert bad packs for inspection.

15046 "No Data From Sta 2 - Set Sta 4 Pack Bad"

HARDWARE: New Xfer Conveyor, Type 5, Bridge and Collector

WHAT HAPPENED

Cycling, a pack reached Xfer Station 4, but the pack from Collector/Xfer Station 2 has no data.

Xfer Station 4 is a data holding location for data passed to an exit device such as an Inserter

ACTION TO TAKE

Had the Xfer Station 2 pack previously entered Collector/Xfer Station 2 normally, no error?

Had the Xfer Station 2 pack previously exited Collector/Xfer Station 2 normally, no error?

ANY OTHER ADJUSTMENTS

This pack was marked bad.

Was there an Xfer Conveyor error in the previous cycle?

Remove and inspect this pack and other suspect packs or allow the pack to be diverted for inspection downstream.

Set Engin. Value#55 to 1 to set all packs in the Xfer Conveyor bad.

The following device, maybe an Inserter, may have provision to divert bad packs for inspection.

15050 "No Data From Sta 1 - Set Sta 2 Pack Bad"

HARDWARE: New Xfer Conveyor, Bridge and Two Stage

WHAT HAPPENED

Cycling, a pack reached Xfer Station 2, but the pack from Xfer Station 1 has no data.

ACTION TO TAKE

Had the Xfer Station 1 pack previously entered Xfer Station 1 normally, no error?

Had the Xfer Station 1 pack moved to Xfer Station 2 normally, no error?

Test the sensors at Station 1 and 2.

ANY OTHER ADJUSTMENTS

This pack was marked bad.

Was there an Xfer Conveyor error in the previous cycle?

Remove and inspect this pack and other suspect packs or allow the pack to be diverted for inspection downstream.

Set Engin. Value#55 to 1 to set all packs in the Xfer Conveyor bad.

The following device, maybe an Inserter, may have provision to divert bad packs for inspection.

15051 "Data Overwrite Sta 2 - Set Sta 2 Pack Bad"

HARDWARE: New Xfer Conveyor, Bridge and Two Stage

WHAT HAPPENED

Cycling, a pack reached Xfer Station 2, but the data from the previous pack associated with Xfer Station 2 is still present.

ACTION TO TAKE

Did the previous pack move to Xfer Station 3 normally, no error?

Or did the previous pack exit the Xfer Conveyor Station 2 normally, no error?

Test the sensors at Station 1 and 2.

ANY OTHER ADJUSTMENTS

This pack was marked bad.

Was there an Xfer Conveyor error in the previous cycle?

Remove and inspect this pack and other suspect packs or allow the pack to be diverted for inspection downstream.

Set Engin. Value#55 to 1 to set all packs in the Xfer Conveyor bad.

The following device, maybe an Inserter, may have provision to divert bad packs for inspection.

15052 "No Data From Sta 2 - Set Sta 3 Pack Bad"

HARDWARE: New Xfer Conveyor, Bridge and Two Stage

WHAT HAPPENED

Cycling, a pack reached Xfer Station 3, but the pack from Xfer Station 2 has no data.

ACTION TO TAKE

Had the Xfer Station 2 pack previously entered Xfer Station 2 normally, no error?

Had the Xfer Station 3 pack moved from Xfer Station 2 normally, no error?

Test the sensors at Station 2 and 3.

ANY OTHER ADJUSTMENTS

This pack was marked bad.

Was there an Xfer Conveyor error in the previous cycle?

Remove and inspect this pack and other suspect packs or allow the pack to be diverted for inspection downstream.

Set Engin. Value#55 to 1 to set all packs in the Xfer Conveyor bad.

The following device, maybe an Inserter, may have provision to divert bad packs for inspection.

15053 "Data Overwrite Sta 3 - Set Sta 3 Pack Bad"

HARDWARE: New Xfer Conveyor, Bridge and Two Stage

WHAT HAPPENED

Cycling, a pack reached Xfer Station 3, but the data from the previous pack associated with Xfer Station 3 is still present.

ACTION TO TAKE

Did the previous pack exit the Xfer Conveyor normally to the following device?

Test the sensors at Station 2 and 3.

ANY OTHER ADJUSTMENTS

This pack was marked bad.

Was there an Xfer Conveyor error in the previous cycle?

Remove and inspect this pack and other suspect packs or allow the pack to be diverted for inspection downstream.

Set Engin. Value#55 to 1 to set all packs in the Xfer Conveyor bad.

The following device, maybe an Inserter, may have provision to divert bad packs for inspection.

15054 "No Data From Sta 3 - Set Sta 4 Pack Bad"

HARDWARE: New Xfer Conveyor, Bridge and Two Stage

WHAT HAPPENED

Cycling, the pack data reached Xfer Station 4, but the pack from Xfer Station 3 has no data.

Xfer Station 4 is a data holding location for data passed to an exit device such as an Inserter

ACTION TO TAKE

Had the Xfer Station 3 pack previously entered Xfer Station 3 normally, no error?

Test the sensors at Station 3.

ANY OTHER ADJUSTMENTS

This pack was marked bad.

Was there an Xfer Conveyor error in the previous cycle?

Remove and inspect this pack and other suspect packs or allow the pack to be diverted for inspection downstream.

Set Engin. Value#55 to 1 to set all packs in the Xfer Conveyor bad.

The following device, maybe an Inserter, may have provision to divert bad packs for inspection.

15055 " Data Overwrite Sta 4 - Set Sta 4 Pack Bad"

HARDWARE: New Xfer Conveyor, Bridge and Two Stage

WHAT HAPPENED

Cycling, the pack data reached Xfer Station 4, but the data from the previous pack associated with Xfer Station 4 is still present.

Xfer Station 4 is a data holding location for data passed to an exit device such as an Inserter

Test the sensors at Station 3.

ACTION TO TAKE

Did the previous pack exit the Xfer Conveyor normally to the following device?

ANY OTHER ADJUSTMENTS

This pack was marked bad.

Was there an Xfer Conveyor error in the previous cycle?

Remove and inspect this pack and other suspect packs or allow the pack to be diverted for inspection downstream.

Set Engin. Value#55 to 1 to set all packs in the Xfer Conveyor bad.

The following device, maybe an Inserter, may have provision to divert bad packs for inspection.

15056 "No Data From Sta 1 - Set Sta 4 Pack Bad"

HARDWARE: New Xfer Conveyor, Type 3, TEST Simulator on Old Xfer Conveyor TEST

WHAT HAPPENED

Cycling, the pack data reached Xfer Station 4, but the pack from Xfer Station 1 has no data.

Xfer Station 4 is a data holding location for data passed to an exit device such as an Inserter

ACTION TO TAKE

Had the Xfer Station 1 pack previously entered Xfer Station 1 normally, no error?

Had the Xfer Station 1 pack moved to Xfer Station 4 normally, no error?

Test the sensors at Station 1.

ANY OTHER ADJUSTMENTS

This pack was marked bad.

Was there an Xfer Conveyor error in the previous cycle?

Remove and inspect this pack and other suspect packs or allow the pack to be diverted for inspection downstream.

Set Engin. Value#55 to 1 to set all packs in the Xfer Conveyor bad.

The following device, maybe an Inserter, may have provision to divert bad packs for inspection.

15057 "Data Overwrite Sta 4 - Set Sta 4 Pack Bad"

HARDWARE: New Xfer Conveyor, Type 3, TEST Simulator on Old Xfer Conveyor TEST

15057 "Data Overwrite Sta 4 - Set Sta 4 Pack Bad"

HARDWARE: New Xfer Conveyor, Type 5, Bridge and Collector

WHAT HAPPENED

Cycling, the pack data reached Xfer Station 4, but the data from the previous pack associated with Xfer Station 4 is still present.

Xfer Station 4 is a data holding location for data passed to an exit device such as an Inserter

ACTION TO TAKE

Did the previous pack exit the Xfer Conveyor normally to the following device?

Test the sensors at Station 1 or 2 or 3.

ANY OTHER ADJUSTMENTS

This pack was marked bad.

Was there an Xfer Conveyor error in the previous cycle?

Remove and inspect this pack and other suspect packs or allow the pack to be diverted for inspection downstream.

Set Engin. Value#55 to 1 to set all packs in the Xfer Conveyor bad.

The following device, maybe an Inserter, may have provision to divert bad packs for inspection.

15058 "Data Overwrite Sta 2 - Set Sta 2 Pack Bad"

HARDWARE: New Xfer Conveyor, Type 4, Flats to Two Stage

WHAT HAPPENED

Cycling, a pack reached Xfer Station 2, but the data from the previous pack associated with Xfer Station 2 is still present.

ACTION TO TAKE

Did the previous pack move to Xfer Station 2 normally, no error?

Or did the previous pack exit the Xfer Conveyor normally to the following device?

Test the sensors at Station 2.

ANY OTHER ADJUSTMENTS

This pack was marked bad.

Was there an Xfer Conveyor error in the previous cycle?

Remove and inspect this pack and other suspect packs or allow the pack to be diverted for inspection downstream.

Set Engin. Value#55 to 1 to set all packs in the Xfer Conveyor bad.

The following device, maybe an Inserter, may have provision to divert bad packs for inspection.

15059 "Data Overwrite Sta 1 - Set Sta 1 Pack Bad"

HARDWARE: New Xfer Conveyor, Bridge and Two Stage

WHAT HAPPENED

Cycling, a pack reached Xfer Station 1, but the data from the previous pack associated with Xfer Station 1 is still present.

ACTION TO TAKE

Did the previous pack move to Xfer Station 2 normally, no error?

Or did the previous pack exit the Xfer Conveyor normally to the following device?

Test the sensors at Station 1.

ANY OTHER ADJUSTMENTS

This pack was marked bad.

Was there an Xfer Conveyor error in the previous cycle?

Remove and inspect this pack and other suspect packs or allow the pack to be diverted for inspection downstream.

Set Engin. Value#55 to 1 to set all packs in the Xfer Conveyor bad.

The following device, maybe an Inserter, may have provision to divert bad packs for inspection.

C.3g (16xxx or 18xxx) Reader

16052 "READLESS READ ERROR "

(NN=16 BAR READ MESSAGES OR NN=18 LINE READ MESSAGES)

Bar Code Reading Errors

Error Description Cause/Remedy

nnn01 "GROUP NUMBER OUT OF SEQUENCE"

The page that was just fed did not follow the selected group sequencing pattern.

If the group is not out of sequence, check to see that the proper barcode is printed on the page and that the barcode matches the specifications.

Check to see that the proper barcode job is selected.

nnn02 "EXPECTED END OF GROUP"

If pages are sequencing down and the last page fed was page 1, the software expects the next page to have an end-of-set mark on it (new set and highest page of that set) or if 6 pages are fed into the accumulator, the software expects the next page to have a subset mark or an end-of-group mark on it.

If an end-of-group mark was present, check to see that the proper barcode is printed on the page and that the barcode matches the specifications.

Check to see that the proper barcode job is selected

nnn03 "BLANK PAGE"

No code detected.

Check read setup again.

Check for correct feed speed.

Check speed sensor for proper operation.

Check for failure on the CPU, replace as necessary.

Bad UARTs (**U**niversal **A**synchronous **R**eceiver **T**ransmitter) Serial chip

Bad software.

nnn04 "SHORT GROUP"

Check the page to determine if error is valid

Check read setup again.

Check for correct feed speed.

Check speed sensor for proper operation.

Check for failure on the CPU, replace as necessary.

Bad UARTs (**U**niversal **A**synchronous **R**eceiver **T**ransmitter) Serial chip

Bad software.

nnn05 "DUPLICATE PAGE"

Check read setup again.

Check for correct feed speed.

Check speed sensor for proper operation.

Check for failure on the CPU, replace as necessary.

Bad UARTs (**U**niversal **A**synchronous **R**eceiver **T**ransmitter) Serial chip

Bad software.

nnn06 "PAGE OUT OF SEQUENCE"

The page that was just fed did not follow the selected page sequencing pattern.

If the page is not out of sequence, check to see that the proper barcode is printed on the page and that the barcode matches the specifications.

Check to see that the proper barcode job is selected.

nnn07 "INVALID GROUP"

Group is not part of set.

Check to see that the proper barcode is printed on the page and that the barcode matches the specifications.

Check to see that the proper barcode job is selected.

Check read setup again.

Check for correct feed speed.

Check speed sensor for proper operation.

Check for failure on the CPU, replace as necessary.

Bad UARTs (**U**niversal **A**synchronous **R**eceiver **T**ransmitter) Serial chip

Bad software.

nnn08 "EXPECTED PAGE ONE"

If pages are sequencing up, the software expects the first page of each set to be either a 0 or 1 (depending on what minimum page number was selected in the page setup).

If the page was page 1, check to see that the proper barcode is printed on the page and that the barcode matches the specifications.

Check to see that the proper barcode job is selected.

nnn09 "GROUP NUMBER OUT OF RANGE"

Group code was not in specified range (i.e., 1-7)

nnn10 "PAGE OUT OF RANGE"

Similar to "Group Number Out of Range" error (page range must be within 1-7)

nnn11 (NOT USED) "INVALID!"

Invalid command

Cycle machine power

nnn12 "NOT ENOUGH NV-RAM"

The program has run out of non-volatile ram.

You should never get this error. If you do get this error, either the software is bad or the CPU board is bad.

nnn13 "PRESETS CORRUPT"

Some of the preset parameters have fallen out of their defined maximum or minimum range.

If new EPROMS were just installed this error might occur. If this is the case, ignore the error.

If the battery jumper was pulled from the CPU board this error might occur. If this is the case, install the battery jumper and ignore the error.

If neither of the previous scenarios happened, the CPU board is probably bad.

nnn14 "NV RAM FAILED"

Data in the non-volatile ram was changed

Power to the CPU was unplugged directly at the board

Noise in the 120 VAC power

nnn15 "DUAL PORT RAM FAILED"

Hardware failure on reader board

Battery failed or battery jumper missing

Bad CPU 586 board

nnn16 "INVALID COMMAND"

Hardware failure on reader board

Battery failed or battery jumper missing

Bad CPU-586 board

nnn17 "INVALID PIC INT" (Invalid "Programmable Interrupt Controller" interrupt)

Hardware failure on reader board

Battery failed or battery jumper missing

Bad CPU-586 board

nnn18 "INVALID SETUP DATA"

Reader board memory corrupted

Restart machine

nnn19 "PARITY ERROR"

Actual lines of codes must match parity setting (odd or even)

Bad code

nnn20 "LINE OUT OF WINDOW TOLERANCE"

REGISTRATION BAD

OMR Line Code marks are out of tolerance or the spacing is inconsistent

Bad code

nnn21 "BAD ON-CHIP 8501 RAM"

Hardware failure on reader board

Battery failed or battery jumper missing

Bad CPU-586 board

nnn22 "INVALID READER ERROR"

CPU does not understand reader

nnn23 "INVALID CAL SETUP" (Invalid calibration setup)

Feed a calibration sheet several times to ensure that the encoder is reading properly (consistent read numbers)

Reader encoder bad

nnn24 "NO BANK 2 GATE MARK"

Reader was expecting two sets of read code, one was missing

Reader set up improperly

Code is physically missing

Check to see that the proper barcode job is selected

nnn25 "CALIBRATION OUT OF RANGE"

Calibration failed

Check by feeding a calibration sheet

Check read setup again.

Check for correct feed speed

Check speed sensor for proper operation

nnn26 "YES/NO EOG ARE SAME"

This error is only associated with European machines

Check read setup again.

Check for correct feed speed

nnn27 "ROLL PAGE OUT OF SEQUENCE"

The page that was just fed did not follow the selected roll sequencing pattern.

If the roll is not out of sequence, check to see that the proper barcode is printed on the page and that the barcode matches the specifications.

Check to see that the proper barcode job is selected.

nnn28 "UN-EXPECTED RESPONSE"

Paper jam

Reader board failed

Reader encoder bad

nnn29 "EXPECTED READING"

Blank page

Read encoder failed

Paper jam

Feed sensor out of adjustment

nnn30 "READER REBOOTED"

Reader encoder failed

Bad read board

nnn31 "CALIBRATION IN RANGE"

Calibration was successful.

nnn32 "NO RANDOM CHECK MK" (No random check MarK)

Incorrect document in accumulator

Random check mark not set correctly in Setup

Code bad or misprinted

nnn33 "UN-EXPECTED RANDOM CHECK"

Incorrect document in accumulator

Random check mark not set correctly in Setup

Code bad or misprinted

nnn34 "PACK LARGER THAN SET"

There were more sheets in the package than expected.

Check upper and lower pullout rollers for tension between them

nnn35 "PACK LESS THAN SET"

There were less sheets in the package than expected.

Check pullout rollers and tension between retard roller and feed belt.

nnn36 "GROUP NUMBER CHANGED IN SET"

Every page within a set is supposed to have the same group number and the page that was just fed did not.

If the group did not change within the set, check to see that the proper barcode is printed on the page and that the barcode matches the specifications.

Check to see that the proper barcode job is selected.

nnn37 "LAST SET SAME GROUP NUMBER"

The previous group had the same group # as the current.

nnn38 "MAX SHEETS IN ACCUM" (Maximum sheets in ACCUMulator)

The maximum number of sheets set in the system has been reached.

Change setting if a larger pack size is desired

The set size has exceeded the machines capabilities

nnn39 "UN-EXPECTED EOG" (End Of Group)

The end of group mark was read but not expected.

The document sequence is out of order

Misread

Bar code misprinted

nnn40 "NO RESPONSE TIMEOUT"

The reader did not return a reading in the proper amount of time.

Make sure that the barcode reader is lined up with the code.

Make sure that the barcode print on the paper is good quality.

nnn41 "BAD READ" (Bar Reading)

The bar code reader returned an error.

Make sure that the barcode reader is lined up with the code.

Make sure that the barcode print on the paper is good quality.

nnn42 "MAX PAGE NOT = NO. PAGES" (Bar Reading)

Incorrect page count in accumulator

Page count setting incorrect

EOG mark not seen

Read error

nnn43 "INVALID GROUP NUMBER" (Bar Reading)

Incorrectly printed document

Documents out of order

Code not seen

Check, clean and adjust scanner

nnn44 "BAD CHECK DIGIT" (Bar Reading)

Check digit in code is wrong

Code not seen

Check, clean and check mechanical mounting of scanner.

nnn45 "EXPECTED END OF SET" (Bar Reading)

Documents in package exceeded the max sheets expected

nnn46 "EXPECTED PAGE ZERO" (Bar Reading)

Page out of sequence

Incorrectly printed document

Documents out of order

Code not seen

Check, clean and adjust scanner

nnn47 "PAGES GREATER THAN ACCUMULATOR MAX"

More pages were fed than was set in the "Accumualtor Max. Sheets" section of the "Accumulator Setup" screen.

Check the tension between the Retard Roller and the Feed Belt to prevent to ensure extra sheets are not slipping out.

nnn48 "BLANK PAGE OR MISSING MARKS"

nnn49 "ITEM VERIFY COUNT INVALID"

The number of pages fed do not agree with the total pages coded in either the first or last sheet in the set. See "Line Read Setup 1" to select and "Line Read Setup 3" screen for code location and number of marks.

nnn50 "READER SETUP ERROR"

nnn51 "SETUP TIMEOUT ERROR"

nnn52 "READLESS READ ERROR"

nnn53 "CUSTOMER ID CHANGED IN SET"

nnn54 "CUSTOMER ID DID NOT CHANGE AFTER LAST SET"

nnn55 "TOTAL PAGE CHANGED IN SET"

nnn56 "SETUP TIMEOUT ERROR"

nnn57 "NO READ DATA"

nnn99 "UNDEFINED ERROR"

C.3h (17xxx) Inserter Error Messages

Error	Description

Currently there are no error messages for this module.

C.3i (19xxx) EngValue Error Messages

Error	Description

Currently there are no error messages for this module.

C.3j (20xxx) EXITCOMM Error Messages

Error	Description

20001 "NO MESSAGE RESPONSE"

A message was sent to an exit device (i.e., Inserter), but the exit device did not respond.

C.3k (21xxx) InFeed Error Messages

Error	Description

21001 "PAPER DEMAND TIMEOUT"

EVENT: Paper Demand Switch ON to Paper Demand Switch OFF

EVENT CHECK: PaperDemandTimer.

CHECK VALUE: 20000 msec.

ADJUST VALUE: Engin. Value 17

ANALYSIS: Time exceeded, A demand for paper was sent to infeed device (i.e., feeder), but paper was not detected by the feed sensor within the time frame set in engineering values.

C.4 E-STOP PROBLEMS AND ANALYSIS

C.4a Troubleshooting the E-stop / Interlock System

Problem:

The condition described is a cover when first open, then closed, and it takes the E-stop button to be pressed and released then the Restart button pressed in order to run the machine again instead of just closing the cover and pressing the restart button.

Some questions:

Does this happen with all the covers or just one specific cover? Accumulator? feeder? 2 Folder Plate covers? Transfer Conveyor Covers? Etc...?

Analysis:

The E-stop system actually consists of 2 separate sets of 2 loops. The covers are connected through 2 series strings and the E-stop Button is another set of 2 series strings. When a cover opens, both series strings must open in order to make the E-stop controller happy.

If it happens with just one cover, then one of the 2 magnetic reed relay switches is always closed (or shorted). This can also occur if one of the blue bypass jumpers on the Input Output Interconnect Board has not been removed from the offending module. These should be measured and checked.

By cycling the E-stop button, you effectively remove power to the e-stop controller and reset it.

Troubleshooting V6-V6LT E-Stop/Gate Panel:

The following pictures are intended to be helpful in the procedure for correcting a malfunction of the E-Stop System.

1. Check the 24VDC at F1A, page 25, Figure 4, if no value check DC power supply.

2. Check for blown fuse (F2A, 100ma SB, loop string) if blown, check for a shorted interlock which may be grounded. (wire touching a ground point)

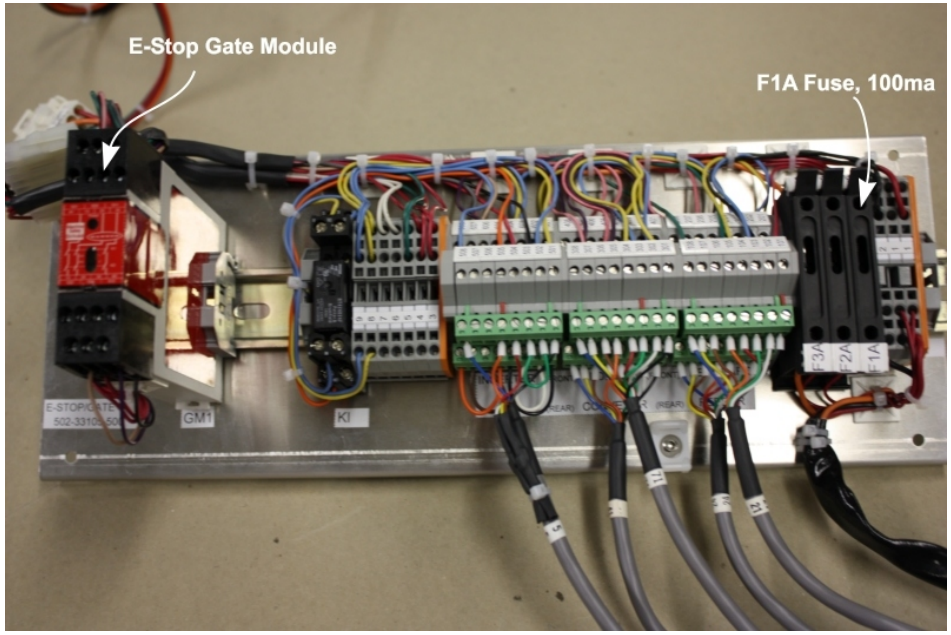
3. Measure interlock loop resistance on the following terminal block numbers:

Feeder:	205 to 208 = 2 ohms or lower
	206 to 207 = 2 ohms or lower
Folder:	305 to 308 = 2 ohms or lower
	306 to 307 = 2 ohms or lower
Conveyor	405 to 408 = 2 ohms or lower
	406 to 407 = 2 ohms or lower
Inserter:	501 to 504 = 2 ohms or lower

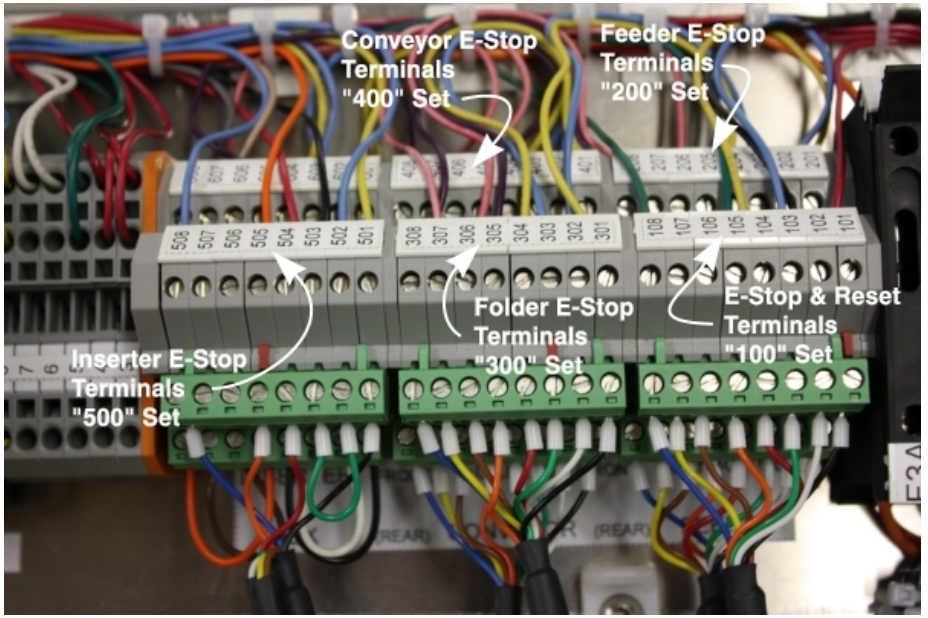
Any open resistance means interlock contact not made by covers and doors. Could also be a bad interlock.

If all interlock resistance check out, check and reset circuit.

E-Stop:	101 to 104 = 5 ohms or lower
	102 to 103 = 5 ohms or lower
Reset:	105 to 108 = 5 ohms or lower
	106 to 107 = 5 ohms or lower



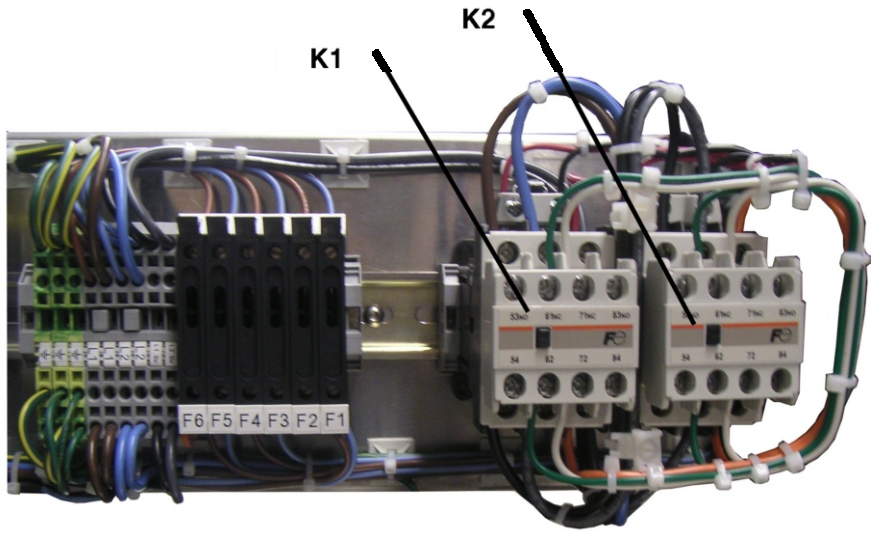
Gate Module & E-Stop Terminals (E-Stop Term Blk 1)


Conveyor E-Stop Terminals "400" Set
Feeder E-Stop Terminals "200" Set
Inserter E-Stop Terminals "500" Set
Folder E-Stop Terminals "300" Set
E-Stop & Reset Terminals "100" Set

Close-up of E-Stop Terminals (E-Stop Term Blk 2)

4. If all check ok, could be a bad guard module, contactor for switch AC and DC could have a bad contact on aux contactor module located on top of the two contactors opposite E-Stop/Gate Panel.

The assembly shown on this page is located in the top portion of the main control cabinet. One side contains the main relays, K1 and K2, as well as the main contactor fuse panel. These fuses are for the fan, the computer power supply, and the DC power supply. All are located in the main control cabinet. Relays K1 and K2 are redundant and provide switched 208-230VAC and switched +24VDC to the system. These relays are monitored by the interlock gate monitoring module and the E-Stop module.



K1 & K2 of E-Stop Circuit

F1 and F2 – Cabinet Fan

F3 and F4 – Computer Power Supply

F5 and F6 – DC Distribution Power Supply

The other side of this assembly contains the interlock gate monitoring module, the E-Stop module and the E-Stop Panel fuses. The fuses are for 24VDC to the E-Stop module, the interlock module, K1 and K2 relays, and the switched 24VDC line from the relays.

F1 – K1 and K2 Relays(contactor coils)

F2 – Interlock Gate Monitoring Module

F3 – Switched 24VDC from K1 and K2 Relays

GBR 420 Inserter Screen List Diagnostic Description

Overview:

The GBR 420 Inserter Interface passes a pack to the inserter track at an open station or a gripper arm.

Once the pack is sensed “In Track”, the pack is tracked through the inserter stations by indexing the data one station at a time when a Demand Feed Signal is received from the inserter at each cycle. The Inserter Interface performs an inserter action based on the pack data at a particular station.

If a pack at Select Station 1 requires material from Select Station 1 the the Inserter Interface enables the vacuum at that station. This control applies to Select Station 1 to Select Station 8 and the envelope station.

Inserter Setup Screen List Description of Pack Data:

Inserter Setup List:

6nbc 5nbc 4nbc 3nbc 2nbc 1nbc 0nbc 0nbc

This gives a picture of a typical machine when facing it. The info is updated at each Logical Shift, right to left, a new pack coming into the open stations and moving left. The latest update is at the bottom of the list.

Position: 6 to 1 are the select station numbers, 0 and 0 are open stations.

Position: ‘n’ is an arbitrary sequence number generated by the 420T, 1 to 9 to 1

Position: ‘b’ is Station Selects 1 to 4 weighted as 1, 2, 4, 8 and added. 0 to 9 to A to F.

4 Station Screen Readout

Sta. 4	Sta. 3	Sta. 2	Sta. 1	'b'
0	0	0	0	0
0	0	0	1	1
0	0	1	0	2
0	0	1	1	3
0	1	0	0	4
0	1	0	1	5
0	1	1	0	6
0	1	1	1	7
1	0	0	0	8
1	0	0	1	9
1	0	1	0	a
1	0	1	1	b
1	1	0	0	c
1	1	0	1	d
1	1	1	0	e
1	1	1	1	f

Position: ‘c’ is Envelope, Inkmark(Kick, Postal Sort), Divert weighted as 1, 2, 4 and added. 0 to 7.

Div.	Ink.	Env.	'c'
0	0	0	0
0	0	1	1
0	1	0	2
0	1	1	3
1	0	0	4
1	0	1	5
1	1	0	6
1	1	1	7

Inserter SetUp list Example:

6000 5000 4000 3000 2000 1000 0331 0331

- Pack in Open Feed; No.3; Sta. Select 1, 2; Envelope

6000 5000 4000 3000 2000 1331 0411 0411

- Pack in Open Feed; No.4; Sta. Select 1; Envelope

6000 5000 4000 3000 2331 1411 0501 0501

- Pack in Open Feed; No.5; Sta. Select None; Envelope

6000 5000 4000 3331 2411 1501 0000 0000

- NO Pack in Open Feed

6000 5000 4331 3411 2501 1000 0000 0000

- NO Pack in Open Feed

6000 5331 4411 3501 2000 1000 0000 0000

6331 5411 4501 3000 2000 1000 0000 0000

6411 5501 4000 3000 2000 1000 0000 0000

6501 5000 4000 3000 2000 1000 0000 0000

6000 5000 4000 3000 2000 1000 0000 0000

420T/438 - Barcode Data Specification 3 - 2D - Rev.3

Overview

This document outlines a simple specification using a standard 2D Data Matrix Barcode. This simple specification provides basic security for feeding grouped documents with a 420T/438. Group and page sequencing assure that an accumulated group is complete, no extra pages, no missing pages and no missing groups.

Data Matrix is a standard 2D barcode within today's industry, is secure and reliable with error checking on a per character.

Bar Code Description

Data Matrix. A minimum quiet zone around the barcode of .25 inches and an element width of .015 inches.

Data Matrix is dense 2D (two dimensional) barcode. The cells are made up of square modules. There is an X and a Y coordinate to this code. Two adjacent sides of the square symbol are solid black lines; the other two adjacent sides are printed as a series of equally spaced square dots.

Bar coding, sizing, print quality, tolerance ratio tolerance per ECC200 from the ANSI/AIM BC11 and ISO/IEC 16022 specifications.

ISO/IEC 15418:1999 – Symbol Data Format Semantics

ISO/IEC 15434:1999 – Symbol Data Format Syntax

ISO/IEC 15415 – 2-D Print Quality Standard

A total of 22 characters are used.

Data Matrix Examples:

Bit Numbering per Character Conventions:

Normal	B4, B3, B2, B1, B0	
Normal Start at 1	B5, B4, B3, B2, B1	*USED HERE
Reversed Start at 1	B1, B2, B3, B4, B5	

Character String:

Excluding 2D start and stop characters and the preamble/postamble added by the vision system.

Character	1	2	3	4	5	6	7-22
	D	G	G	P	B1	B2	Customer ID

B1 and B2: See BarCode Character to Value to 5-Bit Value Table

Char	Description	Range
1	D - Demand Feed.	0 to 1
	0 = Continue feed and accumulate pack.	
	1 = End of Group, stop feed, pass pack to folder.	
2	GG - Group Sequence	01 to 99 to 01
1	P - Page Up Sequence	1 to 9
1	B1 – First set of Bit Fields	0 to 31
	Bit1 – inserter station 1 select	0 to 1
	0 = disable; 1 = enable	
	Bit 2 – inserter station 2 select	0 to 1

	0 = disable; 1 = enable	
	Bit 3 – inserter station 3 select	0 to 1
	0 = disable; 1 = enable	
	Bit 4 – inserter station 4 select	0 to 1
	0 = disable; 1 = enable	
	Bit 5 – inserter station 5 select	0 to 1
	0 = disable; 1 = enable	
1	B2 – Second set of Bit Fields	0 to 31
	Bit 1 – inserter station 6 select	0 to 1
	0 = disable; 1 = enable	
	Bit 2 – ink/postal mark	0 to 1
	0 = disable; 1 = enable	
	Bit 3 – not used	0 to 1
	Bit 4 – not used	0 to 1
	Bit 5 – not used	0 to 1
16	Customer ID – A 16 char. unique identity.	A to Z , 0 to 9

—-

22 Chars

GBR420 Setups for General Barcode Spec 3 -2D

SYSTEM SETUP

Reader Type	Bar

BARREAD SETUP

Job Number=5	Bar User Setup 1

BARREAD SETUP1

Demand Feed	Normal
Group Seq	Up
Group Seq	Min=1 Max=99
Page Seq	Page Up
Page Seq	Min=1 Max=9 Count Skip=1
Ink Mark	Off
Meter Divert	Off
Subset Mark	Off
UnSeal Mark	Off
UnSeal Mark	Off
Seq. ShutDn Typ	None
Bit Direction	Normal.
Bit Number	5

BARREAD SETUP2

Group Seq Code	Start=2	Length=2	
Start_Bit=0	Length_Bit=0	Inc Type=0	
Page Seq Code	Start=4	Length=1	
Start_Bit=0	Length_Bit=0		
Inserts Code	Start=5	Length=2	
Start_Bit=1	Length_Bit=6		
Dmd Feed Code	Start=1	Length=1	Start_Bit=1
Ink Mark Code	Start=6	Length=1	Start_Bit=2

PmDivert Code
Start=0 Length=0 Start_Bit=0

BARREAD SETUP3

Total Page Code Start=0 Length=0 Start_Bit=0
Length_Bit=0

Seq. Stop Code Start=0 Start_Bit=0

Subset Code Start=0 Start_Bit=0

UnSeal Code Start=0 Start_Bit=0

Staple Code Start=0 Start_Bit=0

No Stop Max. Errors=0

Subset By Count=0

Item Verify Off

Item Verify Min.=0 Max.=0

Check Digit None

BARREAD SETUP4

ReadFeed Type Feed&Read

Read&Feed Start Delay Off

Reader Chn One

Customer ID Seq. Matching

Customer ID Code Start=7 Length=16

Code Lengths Code 39=0 I 2of 5=-1

Code 128=-1 OMR=-1

Number Reads Num. Reads=0

Example1:

Page	Group Seq.	Page Seq.	Ink/Zip Mark	End of Group	Inserts Enabled	Barcode	Description
1	05	1	disabled	Yes	#4	1051801234567890123456	Group 5, page 1, CustID 1234567890123456
2	06	1	disabled	No	#5	0061G02345678901234567	Group 6, page 1, CustID 2345678901234567
3	06	2	disabled	No	#5	0062G02345678901234567	Group 6, page 2, CustID 2345678901234567
4	06	3	disabled	yes	#5	1063G02345678901234567	Group 6, page 3, CustID 2345678901234567
5	07	1	disabled	no	#6	0071013456789012345678	Group 7, page 1, CustID 3456789012345678
6	07	2	disabled	yes	#6	1072013456789012345678	Group 7, page 2, CustID 3456789012345678
7	08	1	enabled	no	none	00810245678901234567 89	Group 8, page 1, CustID 4567890123456789
8	08	2	enabled	no	none	00820245678901234567 89	Group 8, page 2, CustID 4567890123456789
9	08	3	enabled	no	none	00830245678901234567 89	Group 8, page 3, CustID 4567890123456789
10	08	4	enabled	yes	none	10840245678901234567 89	Group 8, page 4, CustID 4567890123456789

BarCode Character to Value to 5-Bit Value:

		Value									
Bar Code		**Decimal**	**Hex**	**Bits**							
ASCII			**Binary**	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**
Character											
0		0	00				0	0	0	0	0
1		1	01				0	0	0	0	1
2		2	02				0	0	0	1	0
3		3	03				0	0	0	1	1
4		4	04				0	0	1	0	0
5		5	05				0	0	1	0	1
6		6	06				0	0	1	1	0
7		7	07				0	0	1	1	1
8		8	08				0	1	0	0	0
9		9	09				0	1	0	0	1
A		10	0A				0	1	0	1	0
B		11	0B				0	1	0	1	1
C		12	0C				0	1	1	0	0
D		13	0D				0	1	1	0	1
E		14	0E				0	1	1	1	0
F		15	0F				0	1	1	1	1
G		16	10				1	0	0	0	0
H		17	11				1	0	0	0	1
I		18	12				1	0	0	1	0
J		19	13				1	0	0	1	1
K		20	14				1	0	1	0	0
L		21	15				1	0	1	0	1

M		22	16				1	0	1	1	0
N		23	17				1	0	1	1	1
O		24	18				1	1	0	0	0
P		25	19				1	1	0	0	1
Q		26	1A				1	1	0	1	0
R		27	1B				1	1	0	1	1
S		28	1C				1	1	1	0	0
T		29	1D				1	1	1	0	1
U		30	1E				1	1	1	1	0
V		31	1F				1	1	1	1	1

To define the Extraction of Demand Feed:

Char. Position 1 2 3 4 5

always start at 1 and count up from left to right.

1 8 9 0 9 for this example.

Define Demand Feed Start = 1

Define Demand Feed Length = 5
Must use the entire number.

Demand Feed Data Extracted = "18909" "18909" is converted to a number for the math.

Define Demand Feed Bit Start = 1

Binary weight '1' present? Yes = ON

To define the Extraction of Inkmark: (method 1)

Char. Position 1 2 3 4 5
always start at 1 and count up from left to right.

1 8 9 0 9

for this example.

Define Inkmark Start = 1

Define Inkmark Length = 5
Must use the entire number.

Demand Feed Data Extracted = "18909" "18909" is converted to a number for the math.

Define Demand Feed Start = 1

Define Demand Feed Length = 5 Must use the entire number.

Demand Feed Data Extracted = "18909" "18909" is converted to a number for the math.

Define Demand Feed Bit Start = 1

Binary weight '1' present? Yes = ON

To define the Extraction of Inkmark: (method 2)

Char. Position 1 2 3 4 5

always start at 1 and count up from left to right.

1 8 9 0 9

for this example.

Define Inkmark Start = 1

Define Inkmark Length = 5 Must use the entire number.

Demand Feed Data Extracted = "18909" "18909" is converted to a number for the math.

Define Inkmark Bit Start = 3

Binary weight '4' present? No = OFF

To define the Extraction of Insert Sta. 1 to 6:

Char. Position 1 2 3 4 5

always start at 1 and count up from left to right.

1 8 9 0 9

for this example.

Define Insert Start = 1

Define Insert Length = 5 Must use the entire number.

Demand Feed Data Extracted = “18909” “18909” is converted to a number for the math.

Define Insert Bit Start = 10

Define Insert Bit Length = 6

Binary weight ‘512’ present? Yes = Insert Sta. 1 ON

Binary weight ‘1024’ present? No = Insert Sta. 2 OFF

Binary weight ‘2048’ present? Yes = Insert Sta. 3 ON

Binary weight ‘4096’ present? No = Insert Sta. 4 OFF

Binary weight ‘8192’ present? No = Insert Sta. 5 OFF

Binary weight ‘16384’ present? Yes = Insert Sta. 6 ON

Bit Number

Bit Number allows for pre-decoding the barcode string.

Bit Number

5 For Code 39 decoded(see table below) to 5-Bit values. Bit Positions 5-4-3-2-1.

6(NT) No decoding. 6-Bit values. Bit Positions 6-5-4-3-2-1.

7(NT) No decoding. 7-Bit values. Bit Positions 7-6-5-4-3-2-1.

8(NT) No decoding. 8-Bit values. Bit Positions 8-6-5-4-3-2-1.

Barcode Setups

A listing of Barcode extraction setup sections.

Group Seq Code

Start (0 to 30). Start character.

Length (0 to 5). Number of characters.

Start_Bit (0 to 30). (1 to 30)Starting bit position within character.

Length_Bit (0 to 30). Number of bits.

Page Seq Code

Start (0 to 30). Start character.

Length (0 to 3). Number of characters.

Start_Bit (0 to 30). (1 to 30)Starting bit position within character.

Length_Bit (0 to 30). Number of bits.

Inserts Code

Start (0 to 30). Start character.

Length (0 to 20). Number of characters.

Start_Bit (0 to 30). (1 to 30)Starting bit position within character.

Length_Bit (0 to 30). Number of bits.

Demand Feed Code

Start (0 to 30). Start character.

Length (0 to 20). Number of characters. Used with Normal-A or Reverse-A, multiple character numeric values,

Start_Bit (0 to 20). (1 to 30)Starting bit position within character.

Ink Mark Code

Start (0 to 30). Start character.

Length (0 to 20). Number of characters. Used with Normal-A or Reverse-A, multiple character numeric values,

Start_Bit (0 to 20). (1 to 30)Starting bit position within character.

PmDivert Code

Start (0 to 30). Start character.

Length (0 to 20). Number of characters. Used with Normal-A or Reverse-A, multiple character numeric values,

Start_Bit (0 to 20). (1 to 30)Starting bit position within character.

Character	Decimal	Hex	Binary (Bit Position 6-5-4-3-2-1)
0	0	0	000000
1	1	1	000001
2	2	2	000010
3	3	3	000011
4	4	4	000100
5	5	5	000101
6	6	6	000110
7	7	7	000111
8	8	8	001000
9	9	9	001001
A	10	A	001010
B	11	B	001011
C	12	C	001100
D	13	D	001101
E	14	E	001110
F	15	F	001111
G	16	10	010000
H	17	11	010001
I	18	12	010010
J	19	13	010011
K	20	14	010100
L	21	15	010101
M	22	16	010110
N	23	17	010111
O	24	18	011000
P	25	19	011001
Q	26	1A	011010
R	27	1B	011011

S	28	1C	011100
T	29	1D	011101
U	30	1E	011110
V	31	1F	011111
W	32	20	110000
X	33	21	110001
Y	34	22	110010
Z	35	23	110011
-	36	24	110100
.	37	25	110101
Space	38	26	110110
$	39	27	110111
/	40	28	111000
+	41	29	111001
%	42	2A	111010

GBR438/420T – Read End Of Set Operational Summary v2

Overview

When accumulating variable page count sets, coding in the read system, Barread(or camera) or Lineread, must indicate when the set is complete, the last page has been fed.

This is called End Of Set, End Of Group(EOG), End Of Collation(EOC) or Demand Feed(DF).

Common Demand Feed:

Normal

- A Bit or Mark only set on the last page fed.
- EOG Mark At defines where the Demand Feed mark is.

Reverse

- A Bit or Mark only NOT set on the last page fed. All other pages marked.
- EOG Mark At defines where the Demand Feed mark is.

Lineread Demand Feed:

Yes/No

- Two marks required to end the set is more secure.
- A ‘Yes’ Mark only set on the last page fed.
- And a ‘No’ Mark NOT set on the last page fed. All other pages marked.
- Only one mark can be set on any page.
- Both marks set or both marks not set flags an error.
- EOG Mark At defines where the ‘Yes’ Demand Feed mark is.
- NOT EOG Mark At defines where the ‘No’ Demand Feed mark is.

First Page

- This is used to reverse feed, Z to A, a ‘normally’ encoded A to Z stream(Demand Feed EOG mark on last page fed with Page Sequence 1, 2, 3 . . .)
- Requires Page Sequence set to Down.
- Page Sequence Mark Setup defines where the Page Sequence marks are.
- When Page Sequence Down reaches ‘Min’, ‘1’ or ‘0’, this is the last page fed and ends the set.
- Demand Feed First Page with Page Sequence Down requires a Demand Feed Mark on the FIRST page fed as a check.(“EXPECTED END OF GROUP”).

- Demand Feed First Page does not expect a Demand Feed Mark on pages other than the FIRST page fed.(“UNEXPECTED EOG”).
- EOG Mark At defines where the Demand Feed mark is.

Last Only

- A Gate and/or Demand Feed Mark only set on the last page fed.
- All other pages blank. Ignores blank pages.
- The Demand Feed Mark can be the same as the Gate Mark. EOG At would be set to ‘0’.
- EOG Mark At defines where the Demand Feed mark is.

1st Only

- Marks only on the first page fed.
- All other pages blank. Ignores blank pages.
- Uses a total number of pages coded in the marks to count to the last page fed.
- Item Verify Mark Setup defines where the the total number of pages are
- Set the Page to the total number of pages
- Counts Page down to ‘1’. This is the last page fed and ends the set.

Total Page

- Uses a total number of pages coded in the marks to count to the last page fed.
- Verifies a Page Sequence for security.
- Requires Page Sequence set to Total Up or Total Down.
- Item Verify Mark Setup defines where the the total number of pages are.
- For Total Page Up, total number of pages must be on each page.
- Page Sequence Mark Setup defines where the page sequence marks are.
- For Total Page Up when the Page Sequence matches the Total Page, this is the last page fed and ends the set.
- For Total Page Down, total number of pages may be on each page.
- For Total Page Down when the Page Sequence is ‘1’, this is the last page fed and ends the set.
- For Total Page Down the the total number of pages definition, Item Verify Mark, may also be the same as the Page Sequence Mark setup defines.

BOG Mark

- BOG is Beginning Of Group.
- This is a mark only on the first page fed. All other pages no mark.

EOG Mark At defines where the BOG mark is.

Barread Demand Feed:

Total Page

- Uses a total number of pages bits coded in the barcode to count to the last page fed.
- Requires Page Sequence set to Total Up or Total Down.
- Total Page Code Setup defines where the the total number of pages data is.
- Page Sequence Code defines where the Page Sequence data is.
- Total Page Code must define the total page count in the barcode on each page.
- For Total Page Up when the Page Sequence matches the Total Page, this is the last page fed and ends the set.
- For Total Page Down when the Page Sequence is ‘1’, this is the last page fed and ends the set.
- For Total Page Down the Total Page Code definition may also be the same as the Page Sequence Code.

Read First

- Barcode on only the first page. All other pages no barcode.
- The Barcode on the first page must have a total page count.
- Uses a total number of pages bits coded in the barcode to count to the last page fed.
- Total Page Code Setup defines where the the total number of pages data is.
- Requires Page Sequence set to Total Down or Page Down.
- Requires Page Sequence Min set to 1.
- Counts Page down to ‘1’. This is the last page fed and ends the set.

BOG Mark

- BOG is Beginning Of Group.

- This is a mark only on the first page fed. All other pages no mark.
- Demand Feed Code defines where the BOG bit is.

Group Change

- This recognizes a change of Group Sequence (numeric) on the first page fed.
- Group Sequence Code defines where the Group Sequence data is.

Customer ID

- This recognizes a change of Customer ID (alphanumeric) on the first page fed.
- Customer ID Code defines where the Customer ID data is.

D.1 CPU PC104 (SAT520) CARD

CPU SAT 520 Card

GBR Part Number: 042-31117-500

D.1a Features

Video, I/O, up to 4 Serial Interface (RS232 Ports), two floppy

drive interface, Internet and LPT1 Port.

Description of Ports:

1. Access panel for Line Read

2. BCR Com Ports

3. Not Used

4. Floppy Disk Port

5. Printer Port

6. COM 2 Serial Port

7. Touch Screen Port

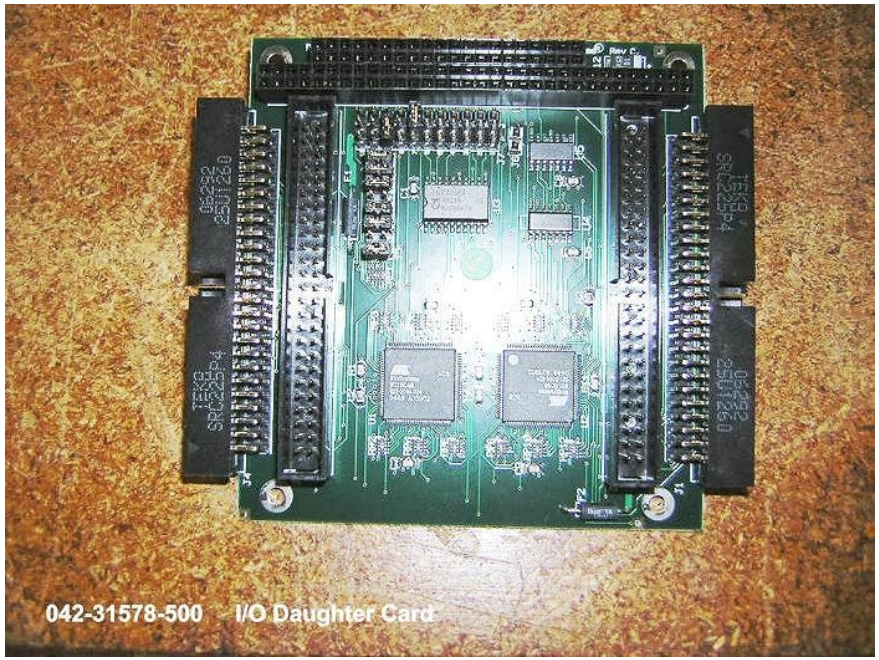
8. SVGA Port

D.1b General Description

The SAT-520Plus is a highly integrated PC/104 and PC/104Plus expandable module with x86 compatibility and standard PC-AT architecture. It utilizes the latest of AMD's embedded processors, the ELAN SC520. The SC520 incorporates a 5x86 CPU core running at 133MHz along with a full 33MHz PCI host bridge, internal AT style peripherals, dual serial ports, and an IDE interface. The addition of the SMSC 37B727 adds the keyboard/mouse controller, two more plug-n-play serial ports, and a SPP/EPP/ECP parallel printer port, dual floppy disk interface. 24 lines of digital I/O, VGA and flat panel support also adds to the expansive feature set. Also onboard the SAT-520Plus is the popular Intel 82551ER10/100 Ethernet controller making this board an excellent choice for embedded applications requiring integrated networking. The 133MHz 5x86 CPU core and the integrated floating point processor offer an excellent compromise between computing power and power consumption. Feature expansion is also supported via either the popular PC/104 expansion bus or through the newer high-performance PCI type PC/104Plus expansion bus. The SAT-520Plus supports both standard rotational media drives, floppy and hard disk, or the popular DiskOnChip® flash modules in sizes ranging from 8 to 288 Mbytes.

D.2 I/O 96 Daughter CARD

GBR Part Number: 042-31578-500



I-O Daughter Card

D.2a General Description

SAT-520 Daughter Card installed as (2 x 48 I/O (two cards stacked)

or 1 x 96 I/O).

The I/O 96 card is responsible for the Input/Output interface between

the CPU card and external inputs and outputs.

Configuration

- Jumpers as shown in diagram
- J1 to touch screen
- J1 to RS232 connector on cabinet bulkhead

J16 to floppy drive

D.3 Single Channel Read Card

GBR Part Number (software will be different depending on whether the board is used for GBR Line Read Code or BB+H type Line Read Code):

042-26908-500

D.3a Function:

Interfaces with the BUS

Processes signals from the GBR or BB+H Line Code Cards

Processes Read Tachometer signal

For BB+H Line Read process edge detect and bar detect

D.3b LED Indications:

The following LED indications apply only when using BB+H line code.

- LED 1 ON/OFF every second indicating operation (except when LED 2 is lit)
- LED 2 ON indicates busy: line code read taking place, calibration read taking place, or machine speed sample being done.
- LED 3 ON indicates line codes will be read using calibration data that has been stored. OFF indicates line codes will be read without using calibration data that has been stored.
- LED 4 ON indicates line codes will be read using high tolerance read scheme. OFF indicates line codes will be read using low tolerance read scheme.

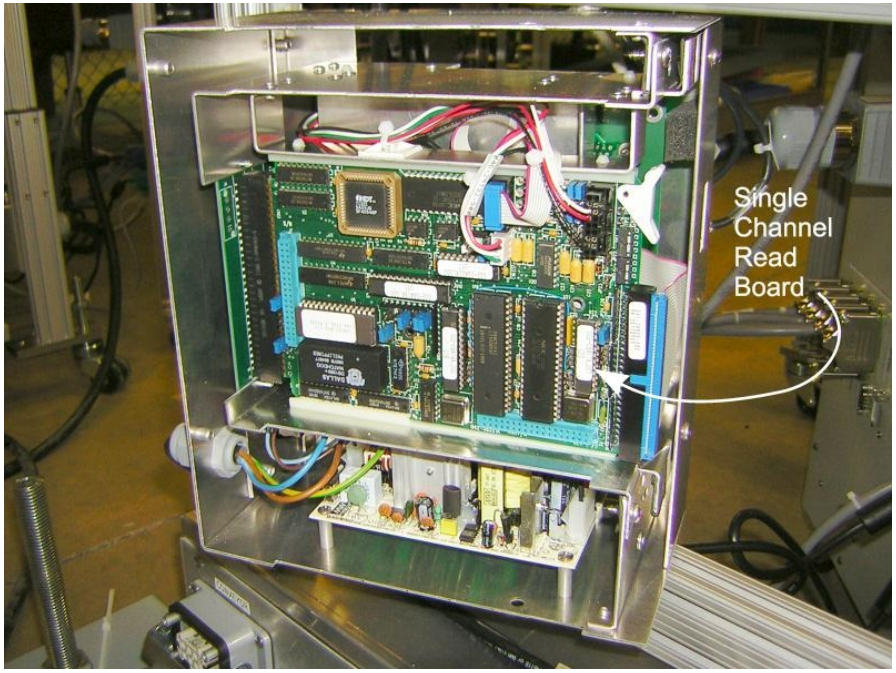
Note:

LED's 1-4 are all turned on while the boot functions are being done. All the lights will stay on if a problem is detected in the hardware of the line code reader card.

- LED 5 Input of lead edge detection sensor probe 1 (sensing paper LED off).
- LED 6 Input of lead edge detection sensor probe 2 (sensing paper LED off).
- LED 7 Not used.
- LED 8 Input of selected line code sensor (Probe 1 or Probe 2).

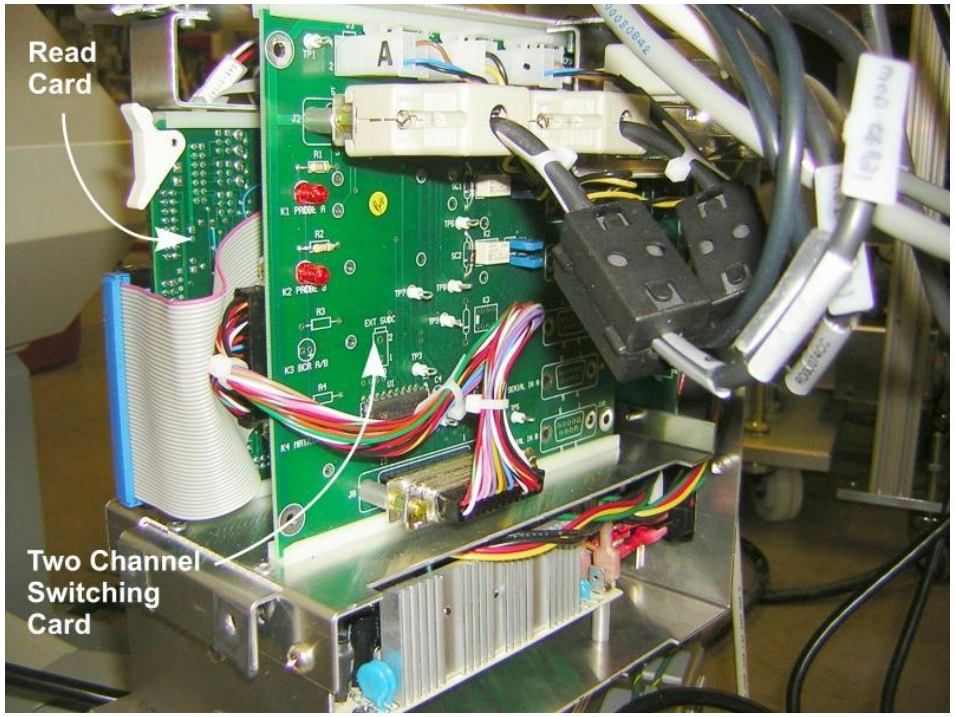
D.6 Line Code Read Card

GBR Part Number: 042-26908-500



Line Code Read Card

This card is mounted separate from the rest of the computer but is connected with cables. The read card is used for both GBR Line Code and Bowe Bell & Howell Line Code. The difference is the software to perform the read criteria.



Two Channel Switching Card

D.6a Two Channel Switching Card

Allows two read systems to be connected to the system at the same time. Usually one read system is installed on the left side of the Feeder and the other is installed on the right side. One of which will be reading the code on the pages from the bottom and the other will be reading the code on the top of the page. This depends of course how the pages are made up, but it is a very flexible system to aid in setup speed. The operator selects which read system (Probe A or B, left or right) is required. The selection is made through the “Line Read Setup 0” screen.

SECTION E. INTERFACE TO INSERTING EQUIPMENT

The 420T is designed to be run on-line with the inserter. It can be docked to any of the insert stations, however, station #1 is preferable. Before the 420T may be mated up to the Inserter there are a few pieces on the Inserter which need to be removed or repositioned. The parts to be removed are the hopper side and rear plates, T-plate, and insert cushion cup. The singulator finger and cushion cup mount must be repositioned. A demand switch must be added to the Inserter.

These changes may be done once and left that way so the 420T may be used again without going through them each time. If this is done however, this station will not be usable in normal operation.

E.1 ENCODER INSTALLATION

There are two optional kits, depending on the inserter, that are available. Kit numbers 389-31589-401 & 389-31589-402 both contain an encoder with pulleys, a timing belt, and miscellaneous hardware for mounting the encoder near the main drive shaft of the inserter.

Below Used On: 775 Configuration W/O Host RPS Encoder

389-31589-401 includes the following parts:

- 002B-20856 Encoder & Mount assy
- 112-082DBA40531 Pulley
- 113-082150025 Timing Belt
- 600A-20855 Pulley Mod

Below Used On: MS500/825 Configuration W/O Host RPS Encoder

389-31589-402 includes the following parts:

- 002B-08081 Encoder assy
- 112-200DBA15631 Pulley
- 113-20120037 Timing Belt
- 112-200DBA15625 Pulley
- 014-25021012 Screws, BHSCS 4-40 x 3/8
- 016-1120 Split-lock Washer
- 016-025 Washer
- 014-04041106 Screws, SHCS ¼-20 x 3/4
- 007-32789-600 Mounting Bracket

The following are steps to describe the mechanical setup of a GBR438 Inserter Encoder on a Bowe Bell & Howell Gripper Arm type machine.

Inserter Home Position Setup

- Jog the Inserter:
- With the gripper moving into the pocket, position and stop the gripper arm fully into the pocket.
- This is the zero, ‘0’, degree position, the Inserter Home position.
- Place the GBR438 at the “Inserter Setup Screen 0”

This screen shows:

- Current Degree Display, 0 to 350 to 0.
- Change in Home Display, 0 to 1 to 0.

NOTE: THIS DISPLAY CHANGES AS THE HOME SIGNAL PASSES.

- ‘1’ IS NOT HOME - ‘0’ IS NOT HOME
- THE CHANGE IN VALUE IS AN INDICATION OF HOME POSITION.
- Loosen the belt at the Inserter Encoder so the Encoder can be rotated without turning the belt connected to the Inserter shaft.
- Rotate the Encoder pulley slowly until the “Inserter Setup Screen 0”, “Home Display” changes either from 0 to 1 or from 1 to 0.
- This indicates that you are rotating through the encoders Home signal.
- Rotate the Encoder slightly back and forth to confirm that the “Home” changes from 0 to 1 or from 1 to 0.
- Re-tighten the belt to the Encoder.
- Slowly cycle the Inserter through its cycles.
- Note the Degree Display cycling 0 to 350 to 0.
- Jog the Inserter:
- With the gripper moving into the pocket, position and stop the gripper arm fully into the pocket.

This is the zero, '0', degree position, the Inserter Home position.

- Note the Degree Display is 0 when the gripper arm is fully into the pocket

IF NOT REPEAT THE PROCESS

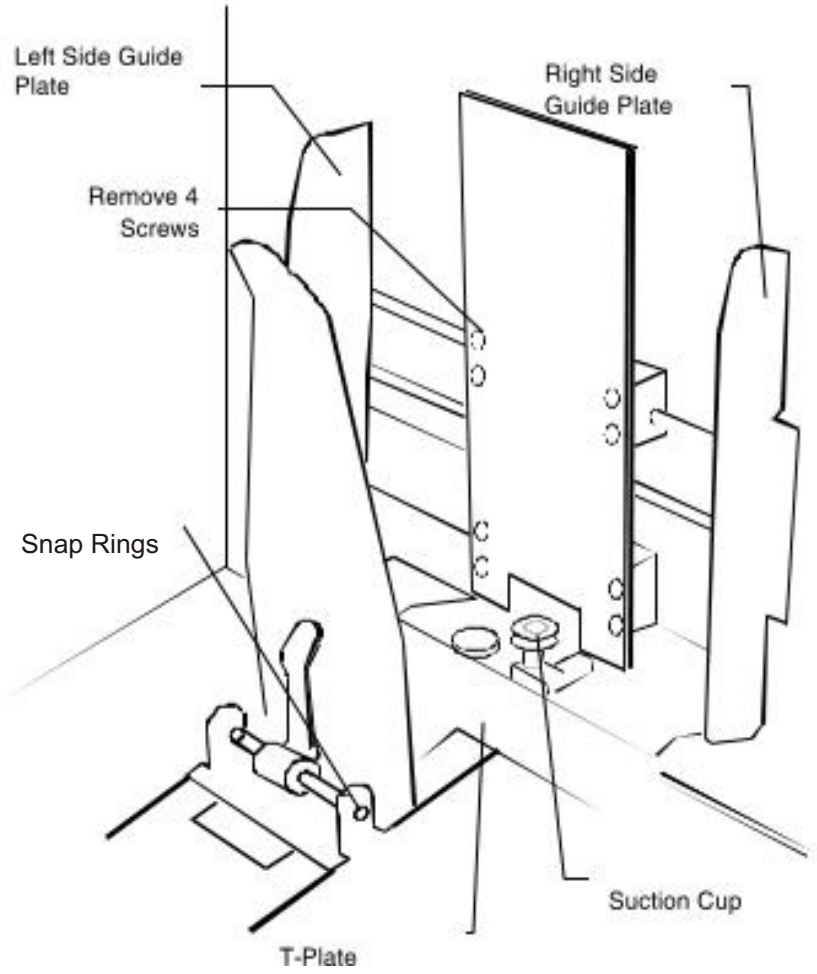
E.2 Removal of insterter's Hopper Side Plates

NOTE: View of Inserter Hopper is from rear of inserter.

- 1. Remove four screws holding side plate adjustment shaft blocks.
- 2. Remove shaft E-clips.
- 3. Unlock right side plate and slide off end of shaft.
- 4. Slide left side plate out to end of shah (near adjustment knob). The shaft and side plate now may be removed (you may find it necessary to turn the plate and shaft to free it from the inserter).

E.2a REMOVE HOPPER GUIDE

- 1. Remove cover directly behind insert station.
- 2. Unlock mount, remove outer snap rings.
- 3. Slide shaft to right, the left side mounting bracket will drop down under the inserter deck.
- 4. Slide shaft to left, the right side bracket will drop.
- 5. Remove rear plate. Remove two phillips head screws holding T-plate in place, remove T-plate.



Inserter Hopper

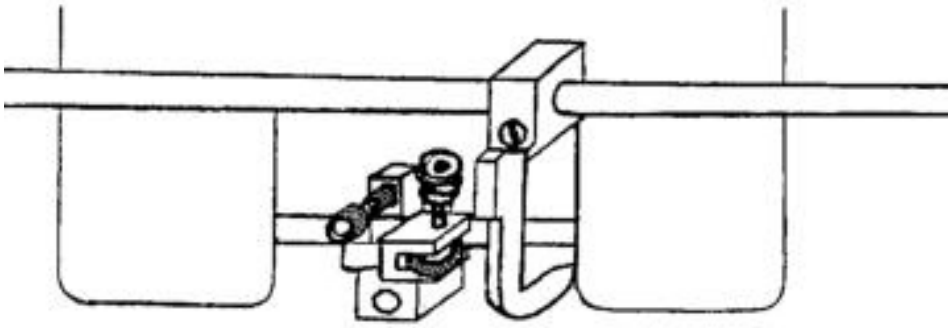
E.2b remove singulator finger

NOTE: View of Singulator Finger is from the front of the Inserter.

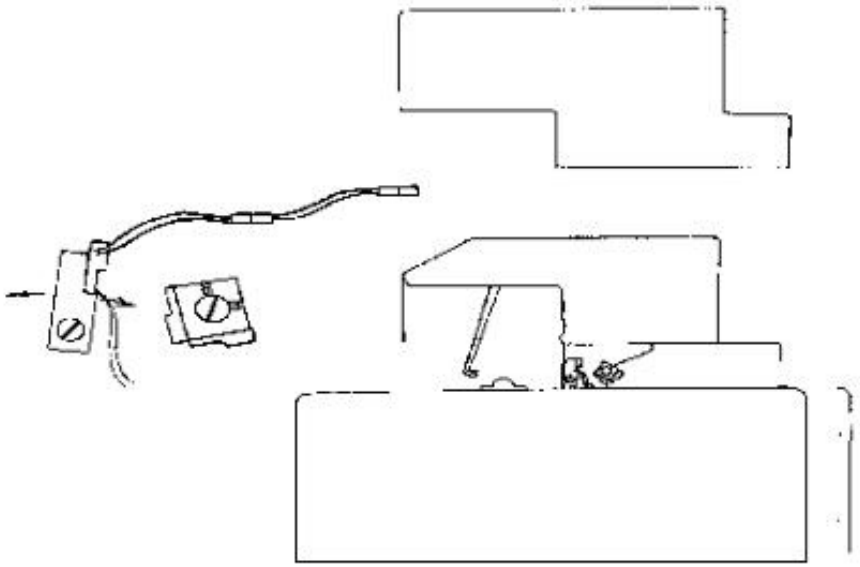
- 1. Cycle the inserter so that the gripper arm is at its furthest point from hopper area.
- 2. Loosen singulator finger, then rotate it away from hopper and to right.
- 3. Remove suction cup. Loosen the cup mount and swing it down away from the hopper area. Do not tighten yet.

- 4. Jog the inserter slowly through one cycle, observing mount closely. You will notice that as the mount swings downward it will bottom against the shaft behind it. If it does not, swing mount further down and cycle the inserter again.

E.2c 420T INTERFACE COUPLING



Singulator Finger



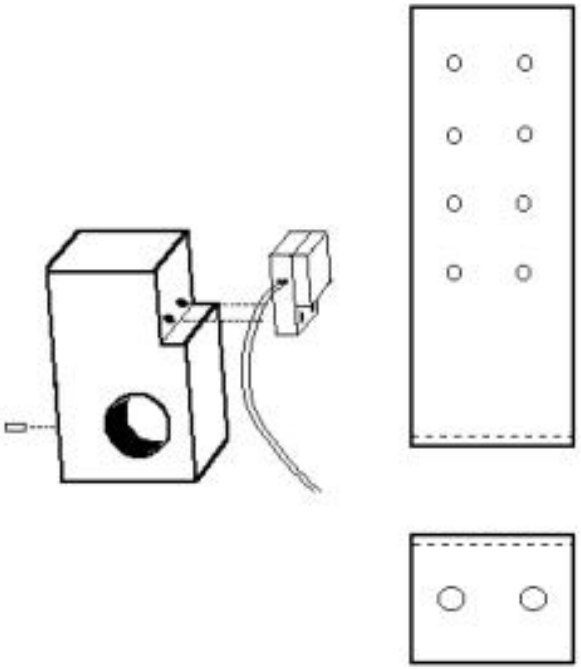
Gripper Arms Orientation to 420T

The machine is designed to permit the operator to connect the 420T directly to the inserting device. The output is conveyed to the inserting device by an articulated conveyor arm. The arm places the document directly in position for the inserter's gripper arm to pull the document out of the conveying arm and place it directly onto the track of the inserter.

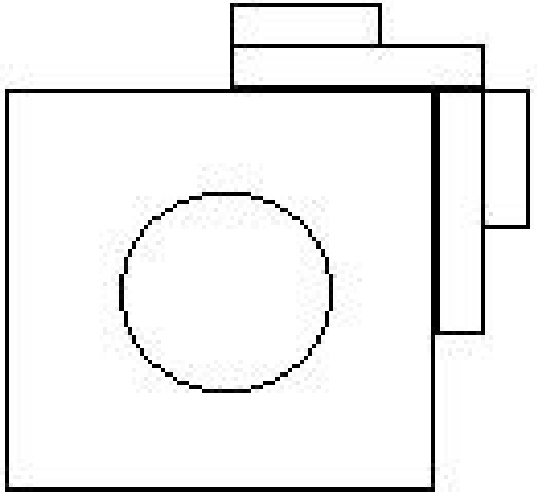
Orientation: As viewed from operator area (front) of the inserter.

- 1. Gain access to shafts located under cover to the right of station 1, at table height.
- 2. Jog inserter so gripper arms are moving towards insert stations: stop when vertical.

- 3. Install switch block on small shaft, with the switch to the top, rear. Looking end on, block should have 5 degree tilt towards other shaft. If shaft is not long enough use universal bracket, on outer frame cover, or deck.



Switch Block and Bracket



Magnetic Block

- 4. Install double magnet block on large shaft. NOTE: Do not tighten yet: snug one screw.
- 5. Turn on the 420T, press the following keys on the operator keypad: TEST, >, ENTER, ENTER
- 6. You are now in the input test section. Connect demand switch to the provided cable from the 420T output conveyor.
- 7. Jog inserter to rotate magnet block assembly. Desired timing is when the demand input (420T display) goes on when the grip arm is one insert from output conveyor while moving away, adjust position of magnet block to accomplish this. When satisfied with the timing, tighten all set screws.

E.3 Transfer Conveyor Adjustments

E.3a Package overhang at last station

When a package is being presented to the gripper arm (last station of the Transfer conveyor) the package should have only the Trailing edge of the folded document held by the flat green belts. Positioning the trailing edge of the document even with the center line of the lower-most forward shaft accomplishes the desired document position.

When the gripper arm removes a package from the Transfer conveyor the flat green belts of the Transfer conveyor will creep if more than 3/4 of inch of the package is being pinched by the flat green belts. The creeping of the flat green belts will cause the packages to become improperly spaced in the Transfer conveyor.

E.3b Position of the outfeed guides

It is recommended that the Transfer conveyor arm be positioned parallel to the deck of the inserter and it should be close enough to the deck so the outfeed guides do not need to drastically deflect the folded document. This will help prevent the flat green belts from creeping and ease the extraction force required to remove the folded document.

E.3c Fold quality

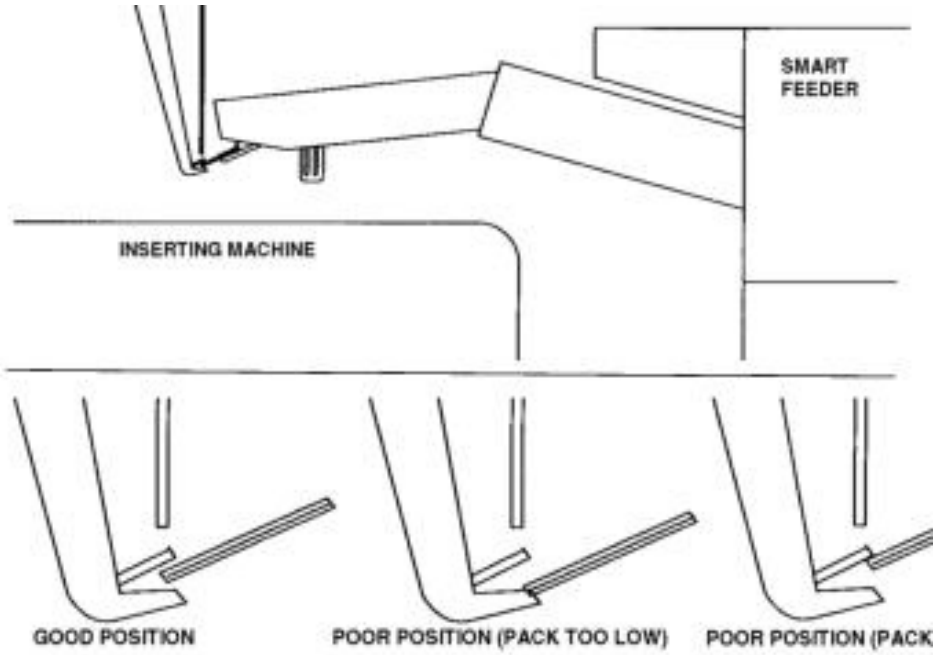
Constant fold quality is required or the package size can vary enough to cause the Transfer conveyor packages to be improperly positioned in the conveyor.

E.3d If a package spacing problem occurs

If package spacing problems occur in the Transfer conveyor it should be purged of all the remaining documents in it. This will insure that documents will be properly positioned.

E.3e Configuration of Exit sensor module

The Exit sensor module on the Transfer conveyor has an “active state” selection switch on it. This switch can set to LIGHT ON or LIGHT OFF. The proper position for the switch is LIGHT ON.



Gripper Arm Position Reference to 420T

Note: This active state setting is the opposite to most of the other sensor modules on the 420T.

E.3f Testing of the exit sensor

The Exit sensor on a 420T creates an interrupt to the control card. This interrupt is what permits accurate position of packages on the Transfer conveyor. Testing that the interrupt is seen is done in the following manner.

- 1. Clear Transfer conveyor of all documents
- 2. Place a folded document approximately 1/2 inch before the Exit sensor on the Transfer conveyor.

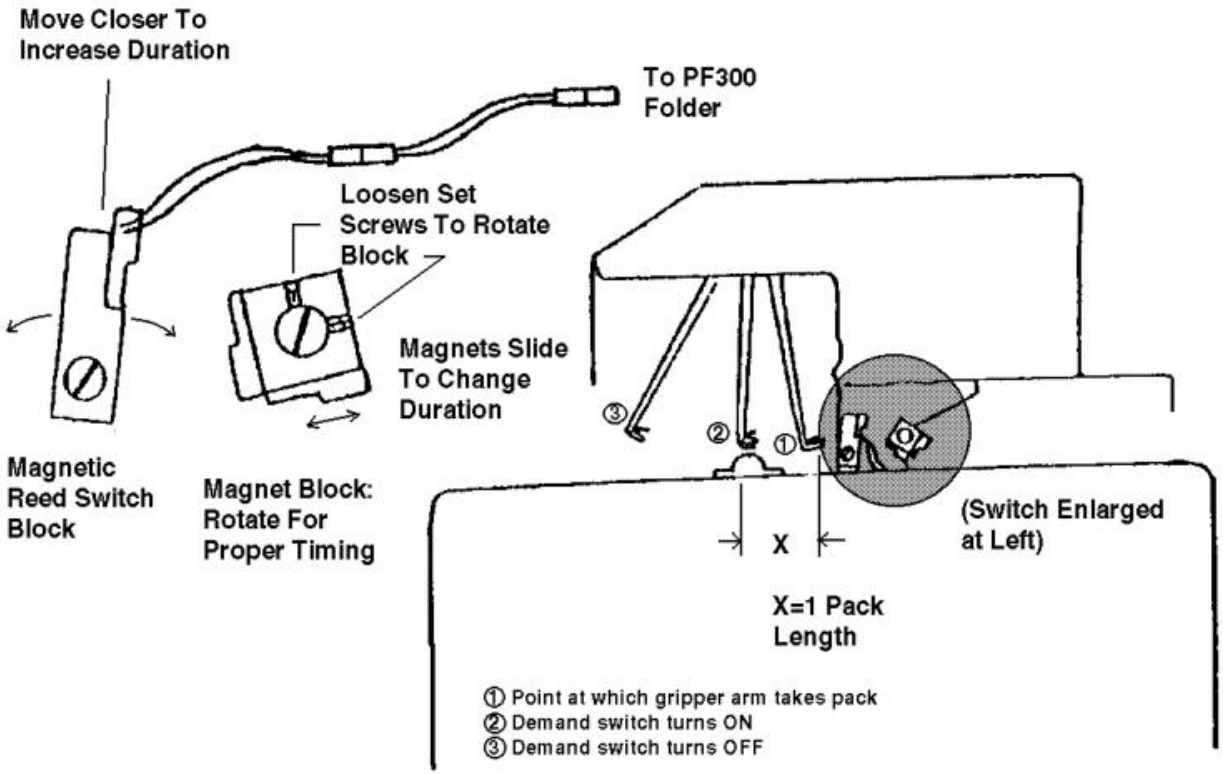
Note: Be sure the inserter is running to supply a Demand signal.

- 3. Run the 420T and command the machine to Dump.

- 4. The Transfer conveyor will index in response to the Dump command. If the package that was placed just before the exit sensor stops at the discharge end of the Transfer conveyor the interrupt is being seen by the control card. However if the document is throughout the end of the Transfer conveyor then the interrupt is not being seen by the control card.

Note: The Interrupt signal enters the Control card CPU-186 at header J9. The signal comes from J10: a 50-pin, in-line ribbon cable header.

E.4 Setup of Demand switch



Demand Switch Adjustment and Setup

Demand switch on/off timing is critical. The setup of this timing permits the 420T to achieve a good interface to the Inserting machine.

The Demand switch should turn on (contacts closed) when the Gripper arm is approximately perpendicular to the deck of the Inserter. The Demand switch should then turn off (contacts open) as the Gripper arm completes it's backwards motion and starts moving toward the Transfer conveyor.

F.1 Software Rev Update using E-Mail

The disk for the New438/420T is specifically bootable on the New438/420T. This boot software is not normally visible and cannot be copied from one disk to another. The entire disk must be 'disk copied' or 'copy disked'.

The application software ('GBR420.exe') is visible and can be copied to and from an e-mail, another disk or from the hard disk of a computer. It only operates in a New438/420T boot-disk.

PROCESS:

1. Attached to the New438/420T is a new revision 'GBR420.exe'. Save this and any other files to your hard disk in a unique folder (such as: \gbr\26412011\ where 26412 is the part number and 011 is the current revision number).

2. Make a disk copy of your current master. In Windows Explorer or My Computer, right click on the 3 ½" Floppy A: and Copy disk…your current master to a new 3 ½" disk.

3. Copy the new e-mailed software revision executable, GBR420.exe to the new disk from step 2. Overwrite the previous revision. Copy any other files sent, such as the dictionary (msgs420.dat) to the appropriate place on the new disk (such as: \gbr\msgs420.dat). This is the new master for the new revision.

4. Make a disk copy of this new master to another 3 ½" disk. Use this copy as the machine boot-disk.

File Structure on the floppy:

A:\gbr

gbr420.ini [Hardware/Application Initialization]

msgs420.dat [Application Screen Text Dictionary, English]

a:\gbr420.exe [Application]

a:\diskmon.bin [Boot Monitor]

F.2 GBR OMR Reader Set-up

Reader Pre-Amp:

1. Adjust Focus (Ensure beam after focus sees a minimum of 4 dots of code)

2. Potentiometer on Pre-amp until 9 of 10 LED's are lit. (On white paper)

3. Move paper to a Black Line, should have 3 or 4 LED's lit.

Reader Board:

1. 2 Potentiometer L (low level) & G (high level)

L (low level) should be set to .6v to .8v.

B. G (high level) should be set to 3.9v to 4.1v.

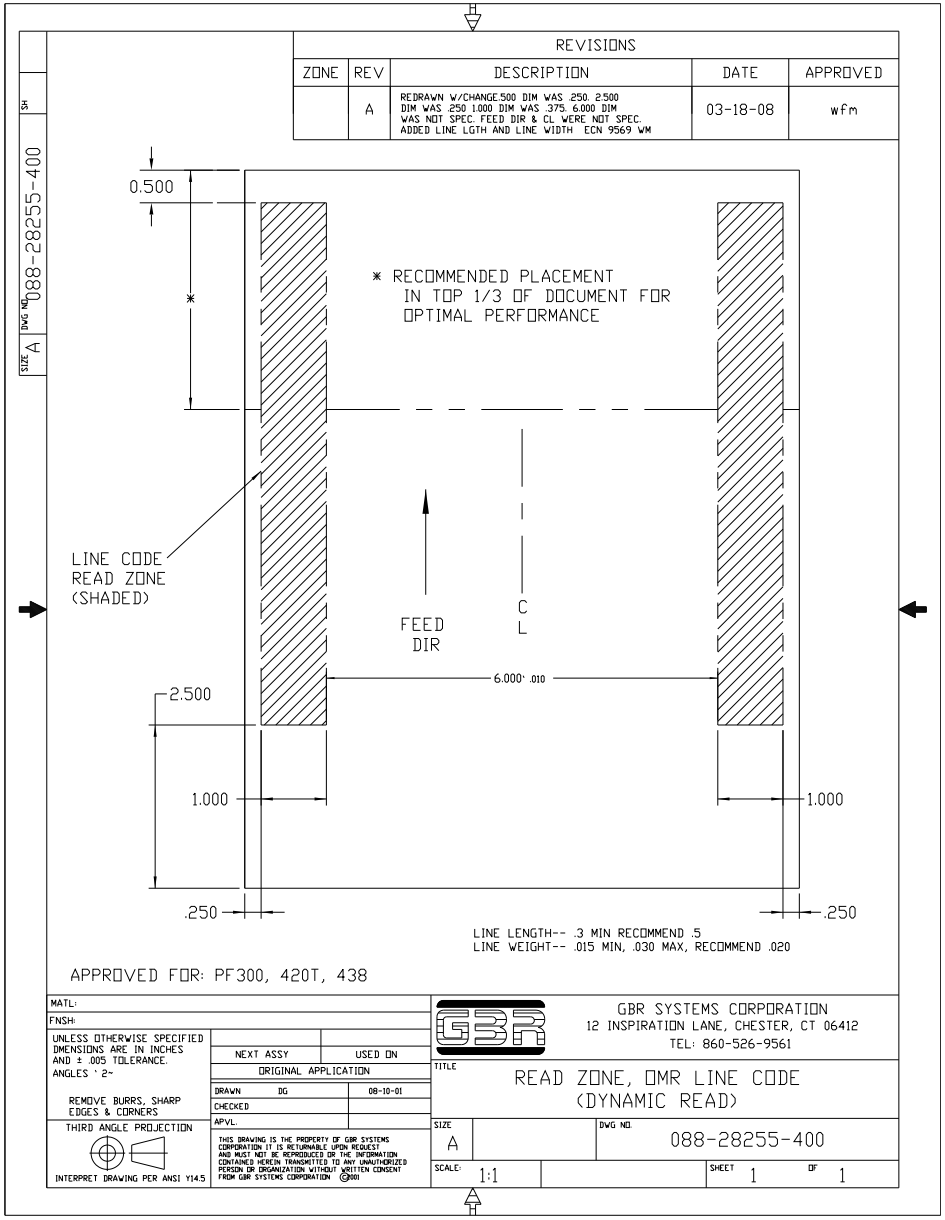
Low Level should be reading on blank white paper.

High Level should be reading on black line.

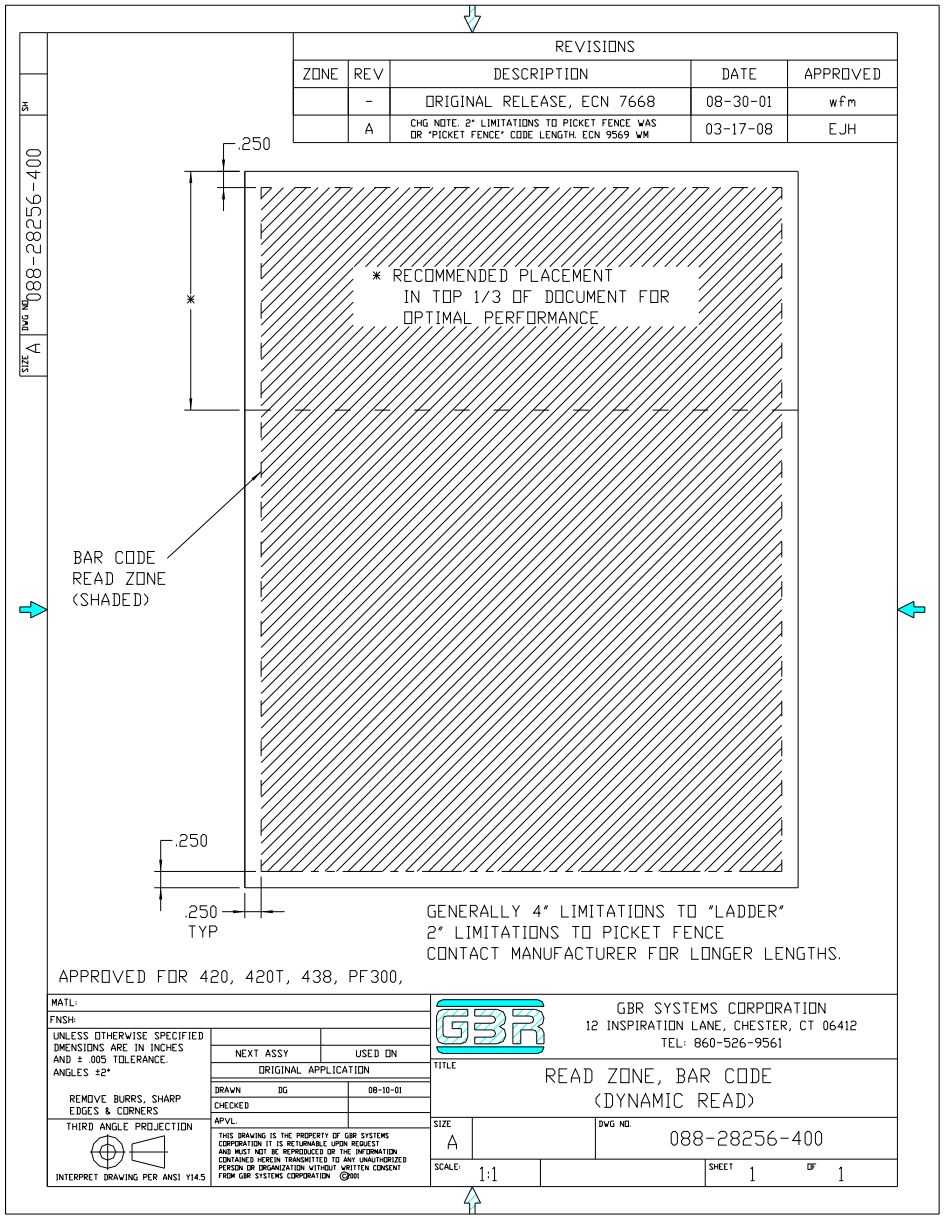
Dots should read 2.4v to 2.6v (approx.).

Note: It is very important while setting up voltages to continue to monitor Bars on Pre-Amp Board (setting voltages sometimes will change numbers of bars). Also ensure that you do not max out potentiometers while adjusting voltages.

F.3 Read Zone Diagrams:


REVISIONS
ZONE REV DESCRIPTION DATE APPROVED
A REDRAWN W/CHANGE.500 DIM WAS .250. 2.500 DIM WAS .250 1.000 DIM WAS .375. 6.000 DIM WAS NOT SPEC. FEED DIR & CL WERE NOT SPEC. ADDED LINE LGTH AND LINE WIDTH ECN 9569 WM 03-18-08 wfm
SIZE A DWG NO 088-28255-400 SH
0.500
* RECOMMENDED PLACEMENT IN TOP 1/3 OF DOCUMENT FOR OPTIMAL PERFORMANCE
LINE CODE READ ZONE (SHADED)
FEED DIR
C L
6.000 ± .010
2.500
1.000
1.000
.250
.250
LINE LENGTH-- .3 MIN RECOMMEND .5
LINE WEIGHT-- .015 MIN, .030 MAX, RECOMMEND .020
APPROVED FOR: PF300, 420T, 438
MATL:
FNSH:
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND ± .005 TOLERANCE. ANGLES ± 2°
REMOVE BURRS, SHARP EDGES & CORNERS
THIRD ANGLE PROJECTION
INTERPRET DRAWING PER ANSI Y14.5
NEXT ASSY USED ON
ORIGINAL APPLICATION
DRAWN DG 08-10-01
CHECKED
APVL.
THIS DRAWING IS THE PROPERTY OF GBR SYSTEMS CORPORATION IT IS RETURNABLE UPON REQUEST AND MUST NOT BE REPRODUCED OR THE INFORMATION CONTAINED HEREIN TRANSMITTED TO ANY UNAUTHORIZED PERSON OR ORGANIZATION WITHOUT WRITTEN CONSENT FROM GBR SYSTEMS CORPORATION ©2001
GBR SYSTEMS CORPORATION
12 INSPIRATION LANE, CHESTER, CT 06412
TEL: 860-526-9561
TITLE
READ ZONE, OMR LINE CODE (DYNAMIC READ)
SIZE A
DWG NO. 088-28255-400
SCALE: 1:1
SHEET 1 OF 1

Line Code Placement


REVISIONS
ZONE REV DESCRIPTION DATE APPROVED
- ORIGINAL RELEASE, ECN 7668 08-30-01 wfm
A CHG NOTE. 2" LIMITATIONS TO PICKET FENCE WAS OR "PICKET FENCE" CODE LENGTH. ECN 9569 WM 03-17-08 EJH
SIZE A DWG NO 088-28256-400 SH
.250
* RECOMMENDED PLACEMENT IN TOP 1/3 OF DOCUMENT FOR OPTIMAL PERFORMANCE
BAR CODE READ ZONE (SHADED)
.250
.250 TYP
GENERALLY 4" LIMITATIONS TO "LADDER"
2" LIMITATIONS TO PICKET FENCE
CONTACT MANUFACTURER FOR LONGER LENGTHS.
APPROVED FOR 420, 420T, 438, PF300,
MATL:
FNSH:
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND ± .005 TOLERANCE. ANGLES ±2°
REMOVE BURRS, SHARP EDGES & CORNERS
THIRD ANGLE PROJECTION
INTERPRET DRAWING PER ANSI Y14.5
NEXT ASSY USED ON
ORIGINAL APPLICATION
DRAWN DG 08-10-01
CHECKED
APVL.
THIS DRAWING IS THE PROPERTY OF GBR SYSTEMS CORPORATION IT IS RETURNABLE UPON REQUEST AND MUST NOT BE REPRODUCED OR THE INFORMATION CONTAINED HEREIN TRANSMITTED TO ANY UNAUTHORIZED PERSON OR ORGANIZATION WITHOUT WRITTEN CONSENT FROM GBR SYSTEMS CORPORATION ©2001
GBR SYSTEMS CORPORATION
12 INSPIRATION LANE, CHESTER, CT 06412
TEL: 860-526-9561
TITLE
READ ZONE, BAR CODE (DYNAMIC READ)
SIZE A
DWG NO. 088-28256-400
SCALE: 1:1
SHEET 1 OF 1

Bar & 2D Code Placement

F.4 Engineering Values

These values are to be used as a starting point. These values may vary, depending on type and weight of paper being processed, environmental conditions, and system tolerances, in order to obtain optimal performance.

(Eng. Software Version)

#	Value	Description
01	20	**"Acc Feed Settle Time" (Range: 0 > 9995, Inc: 5)** Time(msec) after trail edge of last page passes Accumulator stack sensor into Accumulator until Accumulator clutch is fired.
02	40	**"Acc Dump Done Time" (Range: 0 > 9995, Inc: 5)** Advance Feed ON: Time(msec) from "Accumulator is going to dump" until next feed is started. A short value advance feeds, before the pack moves from the Accumulator. A longer time allows pack movement detected at the Accumulator presence sensor to start the next pack feed. Higher is safer, lower is faster, but assumes pack leaves Accumulator. Advance Feed OFF: Time(msec) from pack movement at the detected at the Accumulator presence sensor to start the next pack feed.
03	150	**"Bar Read Time" (Range: 0 > 9995, Inc: 5)** Time(msec) waiting for reader response.
04	250	**"Folder Exit Time" (Straight Conveyor Only) (Range: 0 > 9995, Inc: 5)** Time(msec) allowed for pack to reach the folder exit sensor.
05	150	**"Line Read Time" (Range: 0 > 9995, Inc: 5)** Time(msec) waiting for reader response.
06	10	**"Xcvy Dump To Acc Dump Time" (Range: 0 > 9995, Inc: 5)** Time(msec) from "Xcvy is going to move" until next Accum dump is started.
07	100	**"Xcvy Clutch On Time" (Range: 0 > 9995, Inc: 5)** Time(msec) Xcvy clutch is on adjusted for number of stations. Adjust up/down to place the last pack at the Xcvy exit.
08	300	**"Xcvy Into Station 1 Time" (Range: 0 > 9995, Inc: 5)**
09	50	**"Xcvy Outof Station 1 Time" (Range: 0 > 9995, Inc: 5)**
10	400	**"Folder Start To Conveyor Time" (Range: 0 > 9995, Inc: 5)** Should be greater than Eng Value 04, Folder Exit Time when Exit Type is Conveyor and not in test.
11	0	"**Test Console Switch" (Range: 0 > 1, Inc: 1)** 0 = turns off diagnostics only used in debug mode.
12	1	**"Language Select" (Range: 1 > 2, Inc: 1)** 1 = English. 2 = English
13	0	**"Xcvy Package InOut Counter" (Range: 0 > 9995, Inc: 5)** Max Number of packages expected in Xcvy. 0 disables this check.
14	150	**"Acc Dump Clutch On Time" (Range: 0 > 9995, Inc: 5)** Constant value Accumulator clutch is on adjusted for speed. Adjust up so pack fully exits. Adjust down if next pack is partially pulled under rollers.
15	5	**"TouchScreen X Correction" (Range: -60 > 60, Inc: 1)** Constant value for touch sensing. Adjust up to move sense right. Adjust down to move sense left.
16	-10	**"TouchScreen Y Correction" (Range: -60 > 60, Inc: 1)** Constant value for touch sensing. Adjust down to move sense up. Adjust up to move sense down
17	20000	**"Paper Demand Time" (Range: 0 > 60000, Inc: 500)** Time(msec) waiting for paper stack switch in feeder to be satisfied by infeed.
18	3	**"Max Xcvy Stations" (Range: 2 > 6, Inc: 1)** Max Number of package positions in Xcvy "2-6".

19	0	**"Test ExitComm Test List Switch" (Range: 0 > 255, Inc: 1)** 0 = No extra ExitComm (Comm3) list messages. 1 = Extra ExitComm list messages, times in msec, Demand time, receive character (for Sure-Feed). Bit level assignment: (D7 D6 D5 D4 D3 D2 D1 D0. D7 > D1 = unassigned D0 = ExitComm messages
20	0	**"Exit Demand Switch" (Range: 0 > 1, Inc: 1)** Applies to Hopper Fill and Conveyor. 0 = No Exit Demand required. 1 = Exit Demand required (for Conveyor for Sure-Feed).
21	215	**"Exit Demand Time Out" (Range: 0 > 999, Inc: 1)** Default 60 = 60 seconds to shut down on no demand. Range 0 to 999 seconds.
22	3000	**"Xcvy Jam At Out Time" (Range: 0 > 9000, Inc: 10)** Default 3000 = 3000 msec to pass pack through exit sensor. Range 0 to 9000 msec.
23	350	**"Xcvy Jam At In Time" (Range: 0 > 9000, Inc: 10)** Default 500 = 500 msec to pass from folder to in sensor. Range 0 to 9000 msec.
24	250	**"Feed to Accum Time" (Range: 0 > 5000, Inc: 10)** Default 170 = 170 msec for the lead edge of paper fed at the feed sensor to the lead edge entering the accumulator. Range 0 to 5000 msec.
25	1	**"Advance Feed Switch" (Range: 0 > 1, Inc: 1)** 1=ON, allows the next pack to be started when the Accumulator is supposed to dump plus the Accumulator Dump Time. 0=OFF, starts the next pack after Accumulator Presence Sensor is cleared plus the Accumulator Dump Time. When EV #25 is set to "1", EV's #1,2,23,24 should be adjusted as close to numbers on the right of "?" to obtain optimal performance. These values may vary depending on type and weight of paper being processed, environmental conditions, and system tolerances.
26	1	**"Comm Hardware Type" (Range: 0 > 1, Inc: 1)** 0 = Ziatech, 1 = WinSystems.
27	4444	**"Eng Values Password" (Range: 0 > 9999, Inc: 1)** 4444 = Default(9561 is backup).
28	1	**"Eng Values Enable Password" (Range: 0 > 1, Inc: 1)** 1 = Enable(Default), 0 = Disable. This enables or disables password to access Engineering Values.
29	3	**"Max. Exit Demand power On Cycles" (Range:0 > 99, Inc: 1)** 3 = Default. Number of inserter demand cycles before 438 outputs a package.
30	2	**"Bar Read Commport" (Cycle Machine Power) (Range: 1 > 2, Inc: 1)** 1 = Commport on CPU-PCB. 2 = (Default) Commport on Serial Expansion PCB.
31	700	**"System ON/OFF Time Cycles". (Range: 500 > 700, Inc: 5)** 700 = Default. Debounce time in msec to acknowledge cycling of POWER ON Button Presses from OFF to ON, ON to OFF.
32	100	**"Straight Conveyor Table ON Time" (Range: 5 > 500, Inc: 5)** Default – 100. Time in milliseconds for conveyor table ON time for each pack out of folder.
33	2	**"Number of Double Detect Sample Counts" (Range: 1 > 4, Inc: 1)** Default = 2. Number of Double Detect Sample Counts per sheet fed. 20msec sample rate.
34	0	**"This EV intentionally left blank" (Range: 0 > 1, Inc: 1)** (Maximum Sheets Allowed to Accumulate moved to "Accumulator Setup" in version 26412.051).
35	80	**"Feed Control Brake Delay Time" (Range: 0 > 160, Inc: 10)** Default = 130 msec. Allows the page trail to leave the singulator before the feed brake is applied. Delay calculation based on sheet length, speed, and this constant.
36	100	**"Exit Comm Recvd Ack Time" (Range: 0 > 500, Inc: 10)** Default = 100msec. In Tampa 1 only, if no Ack Response is received the machine errors out and resets the comm. To try transmit again. (See EV#37 for retries.) If set to =0 there is no Exit Comm Rcvd Ack Timer check and no machine error

37	0	**“Exit comm. Xmit Retries” (Range: 0 > 2, Inc: 1)** 1 + Default. In Tampa 1 only, if no Ack Response is received defined in EV#36, a retry is initiated and sends a duplicate serial string. A range of 0->2 retries can be indicated before the machine stops and displays the error: “Exit Comm: No Message Response (E20801)”. (See EV#36 for time setting). If set to =0, no retries are initiated and if an Ack Response is not received in the allotted time (EV#36), an error is generated.
38	2	**“Barcode Reader (1=AS 30+, 2=MS911. 3=DL2031)” (Range: 1 > 3, Inc: 1)** Default = 2. Will select the Start and Stop protocol for either an Accusort Model 30+ or a microscan MS911. 1 = Accusort Model 30+ Bar Read Start Serial Trigger = “S” Bar Read End Serial Trigger = “E” 2 = (Default) Microscan MS911 Bar Read Start Serial Trigger = “” Bar Read End Serial Trigger = “” 3 = DataLogic 2031 Bar Read Start Serial Trigger = “S” Bar Read End Serial Trigger = “E”
39	0	**“Bad pack, Retain Selects? (1=Yes, 0+no)” (Range: 0 > 1, Inc: 1), Default = 0)** 0 = Default. Normal operation. Upon Bad Pack, select and evelope bits are set to zero. 1 = Upon Bad Pack, select and envelope bits are retained.
40	1	**“Electronics? (1 = New, 0 = Old)” (Range: 0 > 1, Inc: 1, Default = 1)** 1 = Default. Enables I/O configuration for new modular electronics. 0 = Enables I/O for classic 420 two rack electronics.
41	0	**“Sequential Stop Cycles (0=Off)” (Range: 0 > 99, Inc: 1, Default = 0)** 0 = Default. Normal operation. 1 – 99 = Demand cycles after package leaves transfer conveyor that I/O point 0:16 “Inserter Stop” is asserted upon the occurrence of a Sequential Stop command.
42	70	**“Max. pages in track 1 – 200” (Range: 1 > 200, Inc: 1, Default = 70)** Used with Flat Feeder configuration. Limits maximum pages that can be accumulated in a track section.
43	0	**“Feed Sensor interrupt (1=ON, 0+OFF)” (Range: 0 > 1, Inc: 1, Default = 0)** 0 = Default. Utilizes poling method for input. 1 = Utilizes interrupt method for input.
44	1	**“Accum Pack Bad: Set Pack After Bad Also” (Range:0 > 1, Inc:1, Default = 1)** 1 = Default. Upon occurrence of a bad pack, the next pack processed is tagged as bad also until a good pack is processed. 0 = Next pack, if no error in normal processing, is not tagged as a bad pack.
45	1	**“Accum Pack has Single: Set Pack Bad” (Range: 0 > 1, Inc:1, Default = 1)** 1 = Default. Upon a single cycle accumulation of a pack in the accumulator, the pack processed is tagged as bad. 0 = pack is not tagged as a bad pack.
46	1	**“Accum Pack Bad: Set Previous Pack Bad Also” (Range: 0 > 1, Inc: 1, Default = 1)** 1 = Default. Upon occurrence of a bad pack, the previous pack processed is tagged as bad pack also. (pack in Xfer conveyor). 0 = Previous pack, if no error in normal processing, is not tagged as a bad pack.
47	0	**“Flap Detect IO Inversion (1=Invert, 0+Normal)” (Range: 0 > 1, Inc:1, Default = 0)** 0 = Default. Normal operation. 1 = Logic inversion for the signal. (Incserco mailcrafter).
48	0	**“Intrack Sns Method (0=Normal, 1=Subset-pause)” (Range: 0 > 1, Inc: 1, Default = 0)** 0 = Default. Normal operation. 1 = Support for Subset-Pause operation utilizing both Transfer Conveyor out Sensor and Intrack/Open Feed Sensor to track folded subsets in same track.
49	0	**“Accum pack Bad: Set Divert By Read Bit” (Range: 0 > 1, Inc:1, Default = 0)** 0 = Default. Normal operation. 1 = Sets Divert by Read bit if the pack is not valid.

50	0	**“ReadLess Read Mode” (Range: 0 > 1, Inc: 1, Default = 0)** 0 = Default. Normal operation. 1 = Special error recovery routine when using Demand Feed type “Read first” in barcode for FPF-35.
51	1	**“First pack Dumped Error Enable” (Range: 0 > 1, Inc: 1, Default = 1)** 1 = Default. Normal operation. 0 = Disables setting bad pack on first pack processed after startup or purge.
52	1	**“Feed & Accum pack Error Enable” (Range: 0 > 1, Inc:1,Default = 1)** 1 = Default. Normal operation. 0 = Disable setting bad pack on Feeder or Accum. Errors.
53	0	**“Inserter Error Pause mode Switch” (Range: 0 > 7, Inc: 1, Default = 0)** 0 = Default. Normal operation 1 = Pulse I/O (1:16) upon a read or processing error. 2 = Pulse I/O (1:16) upon a Demand Feed occurrence while accumulating a package. 3 = combines functions 1 & 2 4 = Steady state on I/O (1:16) upon a Demand Feed occurrence while accumulating a package. 5 = combines functions 1 & 4 6 = Illegal combination. 7 = Illegal combination.
54	0	**Xfer Cvyr Dat Shift Point (0=Feed, 1=Trk, 2=Fd/180, 3=Trk/180)** *[note to myself: need something here from 31264008?]*
55	0	XferCvyr Error: Set All Stations Not Valid
56	0	XvyrN: Settle At Station Time
57	100	FPH Acc Dump Done Time

F.5 Typical Postal Metering Setup Presets

The following are 'Typical Presets' for the 438 configured for 6-Station AC/DC Open Feed Inserter Control with two postal meters, Meter 2 and Meter 3, Meter 1 and Meter 2. This may vary from your actual application.

Test - "Setup"

- Double Detect ON
- resets Reset NA
- ower Left Display OMR
- ower Right Display OMR
- o Use Timeout OFF
- Pulse Feed ON
- Type of Transfer OPEN FEED
- Beep/Bell ON
- Input Conveyor 2000 Sheet Conveyor
- High Count Stop 07
- Performance Off
- Inserter Online/Offline Online
- First Page Hold delay 30
- Config ID Xfer Conveyor(W/Inserter)
- Dump to Feed Delay Setup 05
- Dump Delay Timer Setup 25

Test - "Inserter":

Insert Vacuum Enable	On at:100
Envelope Hopper Vacuum	On at:230

Insert Sta.-:2:

Envelope Flap Detect	On at:010
	Off at:350

Insert Sta.-:1:

Ink Marking:

On at:010
Off at:010

Insert Sta.:00:

Postal Meter Divert:

On at:200 (First Meter inline when Meters 1 and 2 tested)
Off at:010
Insert Sta.:07

Logical Shift	Enable at:090
Bad Package Stop	Enable at:080
Number of Insert Stations	6
Number of Empty Stations	2
Encoder Type	GBR 100 Tick Encoder
Opto Logic Type	AC/DC Dumb Inserter

Postal Meter 2:

On at:200(for first Meter inline, 240 if second meter inline)
Off at:010
Insert Sta.:07
Pt:1

Postal Meter 3:

On at:200(for first Meter inline, 240 if second meter inline)
Off at:010
Insert Sta.:07
Pt:2

Postal Meter Weights:

Meter 1 to 2: 00004 Meter 2 to 3: 00005

Weight Page and Envelope:

Page: 00001 Envelope: 00001 >: 00001 >:00001 >: 00001

Weight Inserts 1 2 3 4:

>: 00001 >: 00001 >: 00001 >: 00001

Weight Inserts 5 6 7 8:

>: 00001 >: 00001 >: 00001 >: 00001